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THE GREAT EXHIBITION AND ITS RESULTS.

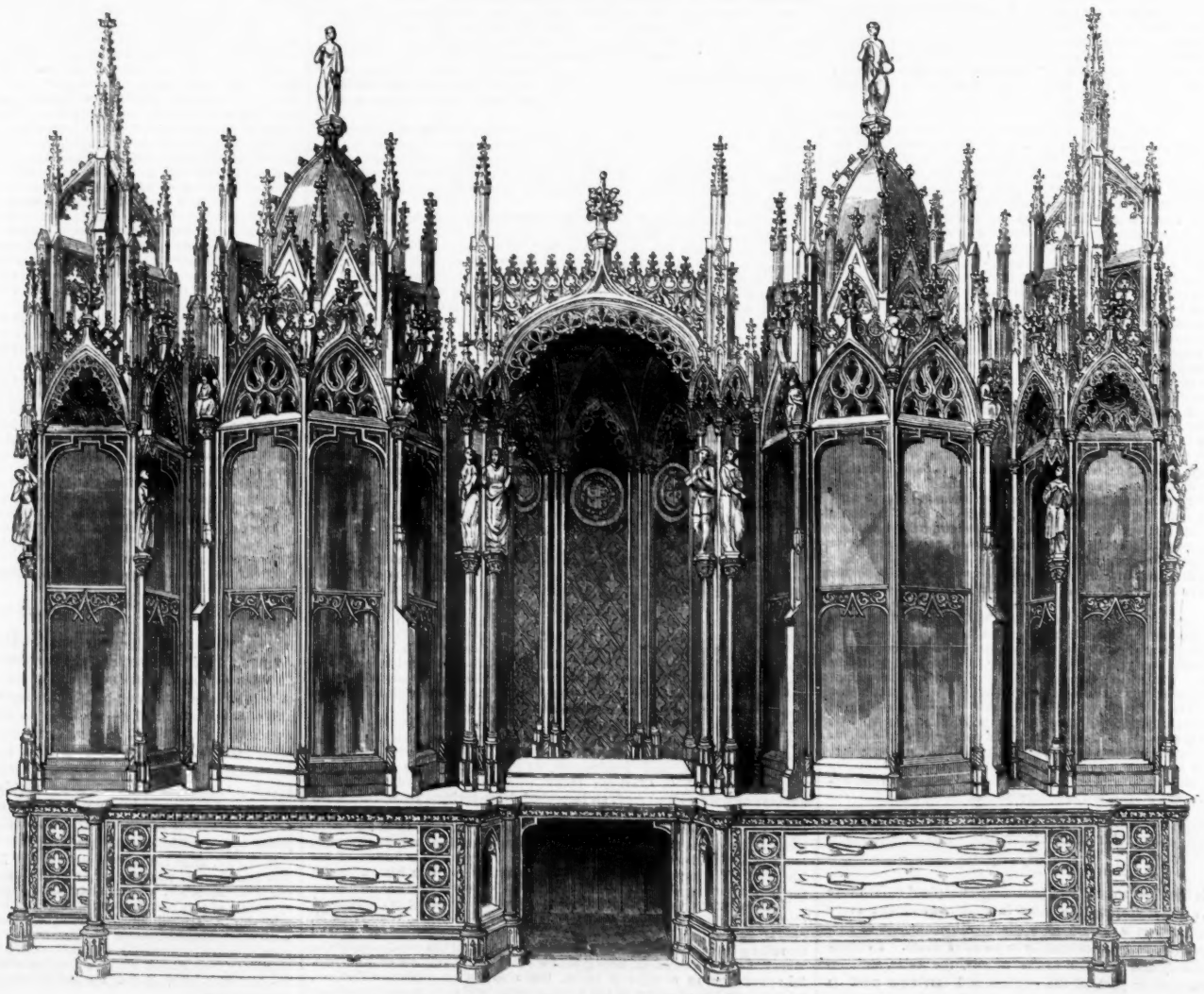
THE Great Exhibition of the Industry of all Nations closes to-day. In the course of a few weeks the most extensive assemblage of valuable products in all branches of manufacture ever brought together under one roof will be scattered and dispersed, and the Great Industrial Congress of 1851 will be numbered with the memorable events of the past.

But its influence will not cease here; it is but the first act of an important social movement, upon which the curtain is about to fall; and who shall say that what is to follow may not go far to realise the profound and philanthropic aspirations of the Prince Consort, the projector and ruling genius of the whole scheme, in the memorable words uttered by him at a banquet given by the Lord Mayor in 1849?

I conceive it to be the duty of every educated person closely to watch and study the time in which he lives; and, as far as in him lies, to add his humble mite of individual exertion to further the accomplishment of what he believes Providence to have ordained. Nobody, however, who has paid any attention to the particular features of our present era, will doubt for a moment that we are living at a period of most wonderful transition, which tends rapidly to the accomplishment of that great end to which, indeed, all history points—the realisation of the unity of mankind. Not an unity which breaks down the limits, and levels the peculiar characteristics of the different nations of the earth, but rather a unity the result and product of those very national varieties and antagonistic qualities. The distances which separated the different nations and parts of the globe are gradually vanishing before the achievements of modern invention, and we can traverse them with incredible ease: the languages of all nations are known, and their acquirements placed within the reach of everybody; thought is communicated with the rapidity and even by the power of lightning. On the other hand, the great principle of division of labour, which may be called the moving power of civilisation, is being extended to all branches of science, industry, and art. Whilst formerly the greatest mental energies strove at universal knowledge, and that knowledge was confined to the few, now they are directed to specialities, and in these again even to the minutest points; but the knowledge acquired becomes at once the property of the community at large. Whilst formerly discovery was wrapt in secresy, the publicity of the present day causes, that no sooner is a discovery or invention made, than it is already improved upon and surpassed by competing efforts;, the products of all quarters of the globe are placed at our disposal, and we have only to choose which is the best and cheapest for our purposes, and the powers of production are intrusted to the stimulus of competition and capital. So man is approaching a more complete fulfilment of that great and sacred mission which he has to perform in this world. His reason being created after the image of God, he has to use it to discover the laws by which the Almighty governs his creation, and, by making these laws his standard of action, to conquer nature to his use—himself a divine instrument. Science discovers these laws of power, motion, and transformation; industry applies them to the raw matter, which the earth yields us in abundance, but which becomes valuable only by knowledge; art teaches us the immutable laws of beauty and symmetry, and gives to our productions forms in accordance with them. Gentlemen, the Exhibition of 1851 is to give us a true test and a living picture of the point of development at which the whole of mankind have arrived in this great task, and a new starting point from which all nations will be able to direct their further exertions.

Looking back upon the experience of the two years since these views were propounded; looking back more particularly upon the six months which have elapsed since the Great Exhibition was completed and thrown open, we are inclined to think there is little if any exaggeration in the hopeful picture of the world's future which is thus shadowed forth, as capable of accomplishment by the right direction of the natural gifts and means at the disposal of the great human family. If no more has been accomplished as yet, the very crowding in of goods from all quarters of the globe, and the thronging in of millions of spectators, interested more or less in the production or uses of those commodities, afford a striking proof of the unanimity which prevails amongst men upon any comprehensive scheme of true usefulness, and their power to carry it into accomplishment.

This great feature also distinguishes the Peace Congress of 1851 from all known political congresses or movements of nations—that whereas, in the one case the gain of one is under almost all circumstances obtained by a concession or sacrifice of interests on the part of some other, and that generally the weaker one; in the other gain is gain to all, the superiority of means or appliance evidenced by each competitor



GOTHIC BOOKCASE.—BY LEISTLER.

This magnificent piece of furniture has been sent over as a present from the Emperor of Austria to her Majesty; the superbly bound books which ornament some of the shelves are also the gift of his Imperial Majesty. The design, which is Gothic, is by Bernardo de Bernardis, an architect of eminence, and J. Krauner, both of Vienna. It is rather too architectural in its arrangement, and the introduction of the statuettes in all directions is not to be approved on the score of taste or propriety. The executive department has been very creditably carried out.

being at once available to the advantage of all the rest. The achievements of human intellect are common property, and only require to be known to be at once applied, in combination with others, to the attainment of still greater achievements.

It cannot be doubted that the success of the Great Exhibition has far exceeded the most sanguine expectations of its projectors; and, but that it was a gathering together for good, they might almost like another Frankenstein, have been terrified at the vast army of observation, of various races and habits, which they have been the means of concentrating around the wealthiest and least defended capital in the world. It is curious, indeed, to look back at a few of the past circumstances in this great drama, and to see how the anticipations of the directors of it have been disappointed; but two will suffice, and we mention them merely as curiosities of history. When, after many struggles, and much canvassing for subscriptions throughout the country, the Royal Commission was formed, and incorporated by charter, its first act was to rescind a contract optionally open to them, with Messrs. Munday, by which all risk or liability upon pecuniary grounds would have been avoided, thus "resting the success of the proposed experiment entirely upon public sympathy." This step probably alarmed the Executive Committee; it seemed at least to them to render the issue problematical, and they immediately, in a body, tendered their resignations. "These resignations," Mr. Cole says, in his Introduction to the Official Catalogue, "were not accepted, and some time elapsed before the executive arrangements were conclusively modified to meet the altered circumstances of the case." Again, when the guarantee fund had been subscribed, and the Crystal Palace was on the eve of completion, Mr. Paxton, doubtless with the assent of others engaged in the anxious undertaking (for the step was not disavowed by them), published a letter to the Prime Minister, urging him to adopt the work on behalf of the public; that is, to pay the expenses out of the Consolidated Fund, and throw the doors open gratuitously, as at the Museum and other public institutions. This proposition was fortunately not acceded to; and nearly half a million of money in voluntary contributions at the doors—the greater part in shillings—has justified the refusal, and given convincing proof of the abundant efficacy of "public sympathy" in a good and useful cause.

The experiment of a gathering of the industry of all nations was a novelty, not only as regards England, but the world generally; for, although there have been many expositions of works and manufactures in France, Belgium, and other countries, and also, in particular districts of England, they have been wholly restricted to the products of the country in which they were held; and when, in 1849, the French Minister of Commerce endeavoured to promote an exposition in France upon a wider basis, comprehending the productions of other nations, the prejudices of commercial bodies to whom he communicated his views dissuaded him from carrying out the scheme.

Nor can it be denied, that when the proposal was made in England, and, indeed, long after that proposal was adopted as a fact, the manufacturing and monied interests of the country looked but coldly upon it, and gave it for a long time an unwilling countenance. Our men of Manchester, and Leeds, and Birmingham may have thought—and thought with some shadow of truth on their side—that, in an intercommunication of industrial experiences, and a comparison of manufacturing processes with all the world combined, they had less to gain than to give; they may even have feared that their best machinery might be copied—their best hands lured from them; they may have thought, besides, that their business was already enough to occupy all their time and attention at home, without making a show of it abroad; and as men of business, and Britons to boot, with something at stake in the land, they may just have shared ever so little in the numerous predictions of trouble and danger which were muttered forth, from time to time, as inevitably attending a large incursion of "disaffected foreigners" from all parts of Europe. As for the agricultural body, they held aloof, because by their political religion they have little sympathy for the restless spirit of industry, which, in their view, has disturbed the harmony and order of our domestic polity, whilst improved methods of tillage, even supposing them to be possible, could only be made the pretence for reducing rents already much too low, and throwing upon the parish agricultural labourers, already much too numerous for the requirements of their respective districts. So little faith had the men of business and the men of land, as yet, in the realisation of "the unity of mankind," in the enlightened and generous spirit propounded by the Prince Consort.

On the other hand there were enthusiasts—travelled men, doubtless,—who took a very different view of the question, and advocated that view very authoritatively in the columns of an influential daily print. They disabused the artificers of England of their supposed superiority; they took the shine out of them "a few," as the Americans would say; they told them very plainly that they had much, had everything, to learn from foreign taste; that, although they could make things very strong, they could not make them neat, much less elegant, according to the neatness and elegance of the Continental standard;—that their calicoes were stout, but tawdry; that their chairs would last for ages, but that they were fashioned upon barbarous models of ages long gone by; that their doors and locks were effectual for the purpose of exclusion, but repulsive in aspect;—that, in fact, in all that related to appearance we were centuries behind civilised Europe.

There were those again who took leave to doubt and hesitate as to the authenticity of these uncomfortable assertions. Old John Bull threw himself back in his easy chair, with his feet on his double piled Axminster carpet, twiddled his thumbs through his snowy-white lawn shirt-frill, gazed vacantly upon the comfortable crimson flock paper-hangings of his *sanctum sanctorum*, and wondered what people could want more. Young John Bull, who had been his six weeks tour abroad, and had traversed the sandy plains of a Belgian *salon;* had tried his weight upon the uncomfortably shaped rush chair of the French hotel; had admired the mysteries of a German door-handle, all primitive iron, and constructed upon the primitive principle of the first lever;—boldly denied it all, and wondered "what they should be told next." And certainly the result of the Great Exhibition has been to disabuse the mind of much of this stupid prejudice, handed down from father to son, and repeated by traveller after traveller, of the infinite superiority in point of taste of the foreign producer. In furniture we certainly have made a very good stand, in respect of appearance alone, to say nothing of solidity; and if in every point we have not equalled the quieter classicism of the French (the classicism of the Louis Quatorze period), we certainly have not been guilty of the excessive and misplaced decoration of the Austrian, nor descended to the crude conceits of the northern German artificers. As to our hardware and our machinery, we need hardly say, that we have shown ourselves, as we were always esteemed to be, without a rival. But we will not be led into making comparisons on other points, as this will be better timed when we have to review the awards of the juries in the several departments.

To return to the point from which we set out. What are the great social advantages which we expect to result from the Great Exhibition of 1851, and in what manner will they conduce to that unity of purpose and interests amongst men which is so desirable? The advantages which we anticipate are, first, increased knowledge of our own resources, and of the resources of our neighbours, which, whilst it inspires a just confidence in ourselves, will also create a feeling of respect for others; secondly, recognition of the importance of the principles of reciprocal dealing, by which the peculiar advantages of one community may be interchanged for those of another; finally, an enlarged field for commerce, and the infusion of a more liberal spirit into commercial transactions, by which commerce will grow, and with it civilisation and peace be extended as the connecting bond of the whole human family.

(To be continued.)

RAILWAY PLANT.

A LARGE outlay is required annually in providing the plant or furniture of every railway, and for keeping the same in repair, as almost every kind of railway appendage is subject to a considerable amount of friction, and, consequently, daily deterioration in point of value. To illustrate this, we need only call attention to the wheels, the axles, and, indeed, to almost every other part of the engines and carriages used on the "iron way;" added to which, the rapid decay of the sleepers, fences, and other wood-works partially buried in the ground, notwithstanding the kyanising and other supposed preservative applications, as well as the great amount of friction to which, the rails are continually subjected, render it quite necessary that every improved and more durable form of rails, wheels, and other parts of the stationary and rolling-stock respectively, should receive the utmost attention of railway directors, whose especial care it should be to remember continually that the shareholders' half-yearly dividends depend a great deal on this important branch of railway economy.

In addition to the locomotive engines, which we have already described in the ILLUSTRATED LONDON NEWS, there are upwards of one hundred contributions in this department, including railway carriages and models, different kinds of permanent way, various patterns of wheels, besides new forms of turntables and traversers, and several new modes of giving signals and applications of the break, besides switches and crossings, lifting-jacks, and locomotive fittings generally.

Railway carriages, with regard to internal arrangements, have undergone but very little change since 1836, for we find, in Whishaw's "Analysis of Railways," the following with regard to the carriages at that time employed on railways:—

"The most approved forms of carriages are the first-class on the Manchester and Liverpool Railway, which are divided into three compartments, each containing ample room for six persons; the extreme length of each is 14 feet, and the width 7 feet. The second-class carriages are open at the sides, and have seats for twenty-four persons. The Stockton and Darlington Railway carriages are divided into three compartments; the middle one is closed, and the other two are open: the extreme width is 5 feet 9 inches; the internal height, 4 feet 8 inches; and the width of each seat, 16 inches: the wheels are four in number, and 2 feet 7 inches diameter. Some of the carriages on the Greenwich Railway are of the size usually adopted, but are without the divisions, having seats all round, except where the doors intervene."

For the narrow gauge lines nothing certainly could have been more comfortable than the first-class carriages of the Manchester and Liverpool Railway, as above described. The second-class, however, were anything but luxurious in bad weather, and people were inclined to compare, them with the outside seats of a stage coach, and to prefer the latter which were at any rate free from the cutting draughts of air rushing violently through the side openings. In this respect a great change has taken place for the better, as we find the comforts of second-class passengers more attended to on some railways; and, instead of the open sides, windows have been added. The "composite carriage" of the Stockton and Darlington line of 1836 still serves as a pattern for the carriage builders of 1851, and is a particularly convenient and indeed economical form for branch lines; the middle compartments being for first-class, and the two end compartments for second-class passengers respectively.

The general form of the Greenwich Railway carriage of 1836 is still preserved by the South-Eastern Railway for the North Kent line, with a different arrangement, however, of the seats within, which enables the grasping managers of the line to cram the different carriages to suffocation, without regard to the class of passengers. The South-Eastern carriage, built by Adams, and exhibited in the railway department of the World's Fair, is, however, on the old and more convenient plan, giving to every first class passenger his own seat, and also allowing a fixed space for so many second class passengers. The peculiarity of this carriage, which has been styled the "carriage of all nations," is, that it consists of a vertebrated body, running on eight wooden wheels, of Mansell's patent construction, and affording accommodation altogether for eighty first and second class passengers. The panels and doors, &c. are of teak-wood, varnished. Adams' patent springs and grease-tight axle boxes have also been adopted; by a mechanical arrangement, the fore and hind parts of this lengthy vehicle, the one for first and the other for second-class passengers, may be so placed in passing curved portions of a line of railway, that the two pairs of wheels on each side, instead of being in one and the same plane, move at an angle to each other according to the degree of curvature. This carriage was built by Brown, Marshall, and Co., and is according to Mr. Adams' patent, who exhibits also a carriage, in connexion with his light passenger engine, as a specimen of his mode of economically working branch lines: thus, he dispenses with one pair of wheels, and underneath the carriage he places a tank of water for the supply of the engine boiler (510, Class 5).

Mr. Williams (530), the well-known railway-carriage builder, has sent to the Exhibition a very handsome first-class passenger carriage, the great novelty of which is the entire absence of paint; all the panels, doors, and other parts of the body being constructed of East India Moulmein teak, well coated with varnish, which brings out the grain of the wood, and altogether produces an elegantly neat appearance. This style of external construction has been adopted for the Royal carriages of the Great Northern Railway.

Mr. M'Connel (539), the locomotive superintendent of the North-Western Railway Company, contributes a novelty in carriage building to the Great Show. He makes the body of corrugated iron, which must be very strong and durable, and, we should imagine, on the whole, economical. This carriage is mounted on six wheels, and is of the composite order; consisting of two first-class compartments, five second-class compartments, and one guard's compartment: a foot-board extends the whole length on either side: it is furnished with Brown's patent buffers; and the exhibitor states that the whole is fire and water proof—a most important consideration.

532. H. H. Henson, also attached to the North-Western Company's extensive establishment, exhibits a luggage van on four wheels, the body with sliding doors, being of similar construction to that of the carriage last described, which is certainly a step in the right direction, as we often hear of sad havoc from fire among the merchandise waggons of railways.

541. We have heard of sheet iron panels for carriage bodies, for such were adopted for the Belgian railways long ago, but, until now, *papier maché* panels have not been introduced. The framework of a railway carriage with panels of this material is exhibited by J. C. Haddon. There is no doubt but that *papier maché* is a most convenient material for moulding into any particular form that may be required, and when painted will resist wet; but as fire must now be guarded against in the construction of railway carriages, we should certainly prefer the construction adopted by Mr. M'Connel and Mr Henson, or the flat metallic panels of the Belgian railway carriage builders.

694. G. Grey, of Birmingham, exhibits an "improved railway break and signal vans," consisting of three small vans separated from each other by spring buffing apparatus, and having also, terminal buffers; the whole mounted on six wheels. In cases of collision such a carriage placed in front, and a second one in the rear of a train would, no doubt, prevent many broken noses and shattered foreheads.

In addition to the full-sized carriages, we find six contributors of model carriages—exhibited either for novelty of design or some new arrangement of parts. The names of the exhibitors of these models are—B. Tennant (564), W. N. Cripps (576), W. Macbay (586), C. Chabot, the zincographer (684), W. Green (704), and R. Welling, jun., the well-known carriage-builder, of Manchester (708). The only one of them which we shall notice is the last-mentioned; as at this time Royal progresses are so frequent, that it becomes necessary to provide every accommodation possible for those so beloved as the Queen of England, her highly-gifted Consort, and their illustrious children. The external design of Mr. Welling's model of a Royal state railway carriage is far better than the internal arrangements. A promenade extends entirely round the carriage, properly railed in—thus affording an opportunity to the Royal travellers, occasionally, to enjoy the picturesque while getting a breath of fresh air. The interior is spoiled by the irregular shape of the saloon—owing to the entrances projecting within the sides of this compartment; while the accommodation in the shape of retiring rooms seems to have been little thought of.

In connexion with carriages, there are several contributions in the shape of improved buffers, breaks, couplings, axles, wheels, and tires. The names of the contributors of the articles included in this classification are—Fossick and Hackworth, of Stockton-on-Tees (10), C. De Bergue (552), T. C. Clarkson (363), who severally exhibit improved buffers; and the first-named, an improved draw-spring. Buffers are made in a variety of ways: for waggons and common carriages they are often made of wood, neatly covered with leather, and padded; then for better kinds of carriages they are constructed of India-rubber, metallic springs, and various kinds of material, according to the particular notion of the inventor. We have not as yet met with anything of this kind of useful carriage appendage at the Exhibition, which deserves especial mention.

Next to buffers, we find six exhibitors of breaks, including W. M'Naught (22), J. Lee (507), J. Dillon (560), W. Handley (690), W. Walker (693), and H. Stoy (705). Most of our readers will have experienced, who travelling by railway, not only the unpleasant sensation produced by the vibrations of the carriage, owing to the sudden application of that useful appendage to a railway train, but also an unpleasant effluvium, arising from the charring of the wood chock. Of late these distressing effects have been much diminished; and it should be the endeavour of all managers of railways to produce the necessary breaking or scotching of the wheels uniformly throughout the train, which is thus more easily and speedily brought to a state of rest. Most of the breaks in ordinary use produce not more than an inch of friction or rubbing surface on the rails, which must speedily destroy the wheels and rails.

Mr. Lee's breaks (507) possess a power of stopping the trains of 18 to 1 over those breaks to which we have alluded, and act directly from the axle and box of the wheels with a wedge-shaped shoe, which presents one surface to the wheel, and another to the rail, the latter extending to 18 inches. These breaks are brought into action by the application of a powerful screw by one revolution, while by an additional half turn of the screw, the whole weight of the carriage is thrown upon the wedge block, thus raising the wheels *one-sixteenth of an inch* above the rails, but no more: thus the wear of the tyre and rails is avoided.

560. Mr. James Dillon's breaks are somewhat similar in their effect to those of Mr. Lee, but different in form—consisting of a long friction slide on each side and between the respective wheels. When the guard applies the necessary power, the slides are brought immediately to bear on the rails, and the carriages are slightly raised therefrom.

690. Handley's patent railway break is of wedge-form, and is applied to each wheel of the carriage to which the apparatus is fixed; so that the carriage may be brought to a stand when going in either direction.

514. G. Knox, of Tottenhall, near Wolverhampton, has contributed a model of his break carriage, the buffers of which are formed of strong spiral springs. The chief object of this invention is to destroy or modify the effect of collisions by the interposition of one or more of such carriages in every train—each of such carriages being calculated to sustain a shock of 60 tons before any mischief could be done, either to itself, or any other carriage guarded by it. The breaks are readily applied by the guard in charge.

Many of the accidents which have from time to time happened to railway trains have been owing to imperfect axles; of late, therefore, much attention has been paid to producing axles of great strength, and which may be relied on.

The Patent Axletree Company exhibit specimens of their patent axles, and also contribute illustrations of the different stages of the manufacture. Their number in the Official Catalogue is 543, and all persons interested in this branch of railway economy should examine the specimens produced by the above-named company.

The other exhibitors of axles are Messrs. G. B. Thornycroft and Co., the well-known Wolverhampton firm (636); Beechcroft, Butler, and Co. (646); Messrs. Worsdell and Co., the carriage builders of Warrington (637); J. Squire and Co. (706); and Messrs. Beechcroft and Co., in particular, exhibit not fewer than twenty-eight different kinds of axles steeled with hard metal bushes, case-hardened with milled bushes, &c.

There is a large display of railway carriage wheels, in most of which, however, we recognise the well-known double spoke pattern of the old house of Losh, Wilson, and Bell, Gateshead; or, at any rate, modifications thereof, though the mode of manufacture in some of the cases is entirely different from that practised by the Gateshead firm as above.

On our survey of the British railways some twelve years since, we found the wheels principally used throughout the kingdom were those of Losh, Hawks, Cottam, and Bramah respectively, all of wrought iron; Warrington's, of cast iron; and the Liverpool and Manchester wooden wheel, with wrought iron tires; there was also a perforated cast-iron disc wheel, but it was not extensively used.

The exhibitors of railway wheels are Sandford and Owen, of Rotherham (No. 554 in the Official Catalogue); T. Spencer, of Tipton (555); Beechcroft, Butler, and Co., of Leeds (646); Banks and Chambers, of Manchester (666); F. Lipscombe, of London (670); Eastwood and Frost, of Derby (672); W. Wharton, of the Euston station (713); and R. C. Marshall, of Ashford (715). J. C. Haddon, of London, whose *papier maché* panels we have already mentioned, contributes railway wheels with wrought-iron naves (541); and Greaves has sent his patent wheels, having eight wooden spokes let into the nave at one end, and into cast-iron sockets forming part of the rim at the other. The appearance of these wheels is very similar to that of the Liverpool and Manchester Railway wooden wheel, already alluded to.

Messrs. Sandford and Co.'s wheel is of wrought iron, 3 feet in diameter, welded into one piece, and executed by machinery—a neat and safe production. Contiguous is one of their 3-feet 6-inch wheels, the spokes of which are welded to an inner rim, which is turned, and the tire shrunk on and secured in the ordinary manner.

Mr. Spencer, the manufacturer, exhibits Chamber's patent wrought-iron wheel, of eight spokes, four projecting from one side of the nave to the rim, and four on the other. This form possesses novelty, and is not deficient in strength.

Messrs. Beechcroft and Company, of the Kirkstall Forge, near Leeds, make a great display of wheels and axles in Class 5 of the Great Exhibition; and in Class 1, many specimens of railway tire-bar, bent cold, in forged state, to show toughness, soundness, and strength of material; to show fibre in fracture; to show mode of manufacture and soundness. In the same Class they also exhibit the best double fagoted carriage axles, bent cold, to show toughness, soundness, and strength of material; and other axles, to show manufacture and soundness. We have thus gone a little out of our way in order to let our friends know where they can see additional samples of the make of iron produced at the celebrated Kirkstall Forge. But to return to their wheels in Class 5. This firm contributes a variety of wheels for the purpose of showing those mostly used on railways at the present time: thus, we find wheels entirely of wrought iron, 3 feet in diameter, some having single, and some double spokes—the boss, spokes, and rim being forged solid in one piece; these wheels are especially calculated for the carriages of fast and express trains. Then there are compound wheels, made of wrought iron and cast iron, of various constructions, calculated for ordinary trains. We also find wheels with wrought-iron disc centres, disked, flanged, and punched all at one process, by hydraulic pressure, the bosses being of solid wrought iron, and the tires dovetailed to the rims, which are flanged; thus the use of rivets is superseded.

The peculiarity of the wheels of Banks and Chambers is the insertion of steel segments in that part of the tire which is most exposed to friction; these segments are 2¼ inches wide, and ½ inch thick, and are let into dovetailed chases.

The "silent" wheels of Mr. Lipscombe consist of the ordinary spokes being enclosed with sheet iron on either side, and the intermediate spaces filled in with wood. The inventor says the object he has in view is to prevent vibration while the wheels are in motion; "thus causing them to run without noise." Even if these advantages could be obtained, the additional expense will prevent their general adoption.

Eastwood and Frost exhibit a segment of a railway wheel produced from a rolled bar, with the boss, arms, and tire complete.

Mr. Mansell states that his wheel, which he designates a safety-wheel, has its tire so secured that no part of it can leave the wheel in case of breakage.

Mr. Haddon shows different kinds of wheels: those of nine spokes, made of straight bars turned down at their ends, to form a solid nave—the other end of each spoke being turned down to form a sold rim. Wheels of this pattern are manufactured by Fox, Henderson, and Co. Secondly, those with segmental bars; and, thirdly, compound rails of wrought iron and wood, the nave being of wrought iron, formed by swelling the ends of the spoke bars, the wood consisting of wedges driven in between.

HUMMING-BIRDS.

AN upright cabinet—perhaps the largest single cabinet in Europe—has just been deposited at the north end of the Transept, containing upwards of four hundred humming-birds. Amongst them are several varieties, and of the greatest rarity—the *Trochilus Loddigesii, longuemares, Gouldii, Dupontii, pyra, Derbyii, Helena, Leadbeaterii*, and others. Nothing can exceed the gorgeous beauty and endless hues of the plumage of these tiny creatures, and their chromatic harmonious arrangement is most pleasing to the eye. In the latter particular, and in the preservation of the natural outline and poise of the birds themselves, Mr. Leadbeater, of Golden-square, is unsurpassed. This collection is the result of thirty years' opportunities of purchase.

The Fox, after Landseer's picture of "Not caught yet," is likewise by Mr. Leadbeater, who has very cleverly carried out a masterly pictorial conceit. Another, of an otter devouring a fish, is a skilful, life-like specimen of this peculiar art. There is likewise a smaller case of humming-birds, stuffed by the younger Leadbeater, in the French style, with the artificial branch and leaves. It is now becoming a favourite, pursuit more particularly amongst ladies, to make sketches and finished paintings from stuffed birds, which has caused an additional incentive to the correct preservation of the natural and graceful outline of the objects thus prepared.

CRYSTALLISED MALT IN THE GREAT EXHIBITION.—In our article upon Food, in the Great Exhibition, we omitted to notice, in Class 3, No. 146, South Gallery, a sample of the porter malt manufactured by Messrs. Poole, Swonnell, and Co., of Kingston-on-Thames. In the process of malting, the substance is converted into sugar, which is seen by breaking a grain of the malt. Its superiority consists in its yielding 25 per cent. more extract than other porter malt, which is obtained by the conversion of the starch into sugar before the heat destroys it.

THIS SHEET WAS PRINTED IN THE GREAT EXHIBITION.

CARTON PIERRE AND PAPIER MACHE.

Two distinct classes of decoration employ paper as the substance upon which ornament is placed—one is in relief, or a direct imitation of sculpture, while the other adopts painting as the vehicle by which to attract the eye; this section includes all those goods which ladies understand by the term *papier maché*, but which have little right to that name, as it properly means paper reduced to a pulp, and then manufactured. At present this is only employed considerably for ornaments in relief, and is pressed in moulds made of metal from plaster models. The lightness of the article is at first sight a proof of the material, but the section of a piece is a still better guide. This manufacture appears to be about twenty-five years old, and is exemplified in the Exposition by the productions of Mr. C. Bielefield. There is a large quantity of his works affixed to the ceiling, and therefore too high for our consideration of its execution, although evidently well chosen pieces of ornament; but on the wall are placed some of the minutest Gothic detail, and fruit and flowers, which are satisfactory. These, with an over-door and a picture or glass frame, exhibit the usual applications of the material, but a new and interesting use is exhibited in a repetition of the celebrated Elgin horse's head, and still more in a bust; the almost perfect infrangibility of this specimen is valuable to those who wish to perpetuate memorials of a beloved friend. There are also two statuettes, after Michael Angelo, which put forward the same claim. In the Nave are two very nice copies of classic capitals, for columns; and on the wall half a dozen consoles and corbels The good taste shown in the selection is praiseworthy; and still better are the two cherubim forming a cartouche, and two other less ornamented works of a similar object. It is with pain that we see the "Flying dragon," executed for the Pavilion at Brighton, and a "Royal arms," both positively bad. This exhibitor's ingenuity in finding new fields for his material is illustrated by a model of Dundee in relief, and by the new patent for rendering it easy to obtain sheets of the *papier maché* of any size and thickness. This, which is at present applied to the partitions of steamers only, is one of those branches of business which it is easy to predict will be found applicable to many other purposes where density, rigidity, and imperviousness to sound, united with exquisite smoothness, are required. We point it out to artists especially, as the bagging of canvass has always a shocking effect; it almost spoilt that beautiful whole-length by Lawrence which was lately exhibited at the British Institution. It is professed that this form of the material is of utility out of doors, and that its rival, "*carton pierre*," is not. This prejudice appears to be tolerably well founded, as the other manufacture seems to consist of plaster of Paris, with other ingredients mixed therein, poured into moulds, allowed to set, and backed with stout paper, to ensure the adherence of minute portions.

Carton pierre is made in France and Germany to a considerable extent, which is not the case with its rival; but if there be really any paper mixed with the plaster, after the Chinese fashion, it is not in such a quantity as to excuse the use of the word *carton* in its name. The best specimens are supposed to come from France. We may cite those exhibited by Huber, amongst whose works are seen an Italian frieze, a Greco-Raffaellesque vase, and a cinque-cento pilaster, of considerable merit, but totally eclipsed by the beautiful over-door executed for the Ecôle des Mines, and by the superb friezes in the real style of Louis XIV., made for Fontainebleau. His neighbour Hardouin supports the same reputation almost in the works repeated for Versailles, but there is not sufficient relief in this and other examples from the same factory. The noble work by Cruchet, in the Nave, is also partially composed of this material; but, taking into dispassionate consideration the productions of Bielefield and of Jackson, it is surely not too much to say that the Parisians are beaten upon their own ground.

Messrs. Jackson and Sons, besides some forty pieces of ornament in all styles usually employed in England, a ceiling in the Elizabethan manner, and a most noble centre flower, exhibit one of the most superb of chandeliers, with sixty lights, in the style of Louis XVI., a very fine terminal console or bracket, and specimens of the work executed by them for the new Army and Navy Club. It is difficult to praise most the invention or the execution of these designs, which are appropriate to their purpose, full of fancy, and boldly conceived, with sufficient delicacy of finish. One candelabrum, partly gilt, excites painful sensations: we perceive at once whence many *soi-disant* upholsterers and cabinet-makers derive their materials of decoration, and are led to think what can be the prospects of a school of ornamental design when such establishments as these exist, in which, in order to make the necessary profit, one invention must last as long as fashion will bear it, and consequently a few designers must monopolize the attention of the few houses which enjoy the trade of supplying every one with ready-made ornament. It is certainly a consolation to know that in some provincial cities the human machine can execute similar work at a less price than these factories, but this is not likely long to be the case.

Gropius, of Berlin, contributes specimens of *stein pappe*, which is understood to be of similar materials with *carton pierre*. There are about fifty pieces, nearly all being statuettes in the modern German taste, half-Greek and half-*rénaissance* in style, not particularly good, but certainly pleasing from their detail. The ornaments are not so well managed; but there is one noble oval mirror-frame which is quite English in its idea.

No other specimens of this manufacture abroad have come under observation, which is remarkable, as paper for ornamental work is at least a hundred years old in this country, from specimens which we have seen.

A remarkable invention is set forth by Messrs. Lincoln and Burnett, being furniture, in the shape of a work-box and table, made of calico; This seems more admirable for the novelty of the idea, than for any practical utility at the present time. The fabric too clearly displays itself, by its lines of the warp and woof, and by the ragged threads; this may be easily remedied, but it is a bad augury.

Somewhat similar are those articles placed to the credit of Mr. G. Hart as inventor, and consisting of two really handsome snuff-boxes, a pair of vases, and of candlesticks, and a work-box well moulded. The chisel must have been used, which argues their being as hard as wood. Some pieces are shown with a grain resembling at first sight that of wood; yet no timber matches these specimens, for the seeming grain is as irregular as marbles generally are. The practical utility of the invention, however, does not yet appear.

The other branch of the present subject includes what, if it were properly named, would be called japanned paper ware, and is chiefly dependent at present upon colour for its attractions.

The minority, or, at least, the most common of these work, are said to be made of paper really *maché*, but the better sort are produced by the simple operation of obtaining the required form from a mould by placing a sheet of paper on or in it, and then fixing sheet upon sheet as the work dries, until the requisite thickness is gained; the lathe, the rasp, or the plane is then employed to give a general finish to the forms produced in this species of millboard or pasteboard, and it is several times varnished, being submitted to so severe a heat as 180 deg.: the inequalities are reduced by scraping and polishing with pumice-stone. Then the design, if any, is put on, and re-varnishing and polishing with rotten-stone is performed, until the final lustre is given by the female palm, as to some sorts of cutlery.

Sometimes mother-of-pearl is employed, but this enters into the manufacture in a slightly different manner. The design being marked upon the mould, thin portions of shell, cut to the necessary forms, are laid upon the pattern, and then the first sheet is applied, and the operations above mentioned are continued. When the requisite thickness is gained, the shell is found bedded in the paper, and the scraping, varnishing, painting, and polishing are completed as before.

There is a large consumption, both at home and abroad, of articles in which the form is almost invariable, such as portfolios, albums, envelope and papeterie cases, paper-knives, card-cases and trays, card-racks, work and knitting, netting, and similar boxes, screens, chessboards, &c; and these rely almost entirely on their pictorial attractions, while beauty of form should be almost an element of as much consideration as the pattern of decoration in tables, chairs, cabinets, desks, *sécrétaires*, vases, inkstands, tea-caddies and tea-poys, trays, mirror frames, coalscuttles, canterburies, music-stools, and pianos.

Both in taste of ornament and execution, as might be expected, the London houses seem to stand first; then the works from Oxford, Wolverhampton, and Birmingham follow; but for appropriate invention those from Wolverhampton may be said to bear the palm: it is, however, a matter of great regret, that there is not found one faithful to the very first principles of good taste, and that some seem to seek how far they can sink beneath the standard prescribed by the conventional laws of propriety.

Mr. Clay's management of colour is unquestionably the best of all, in our opinion; a cheffonier, with flower-panels, is very fair; a sort of Elizabethan miniature *sécrétaire* is a capital idea; the writing-desk table is very pretty, and two Gothic trays are excellent, as well as a simple round one and a novel chessboard; a moresque writing-case and a cinque-cento writing-desk are very good, as is the frame of a Louis XVI. chair; but, above all, their mode of colouring renders a tedesche Louis XVI. tray and card-dish almost unique and excellently showy; there is also a very pretty tea-poy. Of the rest of the articles there need be nothing said but a generally severe criticism

Mr. Dixon's works deserve the epithet of very fair; they form but a small collection, which seems to have been selected by a good judge, and it is only necessary to particularise the centre of flowers in the table: thereon we may consider whether such embellishments are at all appropriate for some of the uses which the articles are to serve. Now it does seem the height of absurdity, when every child even who looks at a picture strives to place it parallel with its face, and when even the exhibitors themselves are compelled to exhibit their wares in the same position, that subjects like the figure, landscape, and flowers in vases, should be chosen for the decoration of articles that are almost always to be seen flat. Mr. Spiers seems to have been conscious of this fact to a great extent, and every visitor to the Exposition must be pleased with those really noble inkstands which are unadorned: yet the most prominent features of his collection are tables with landscapes; the largest has a very pretty ornament, *à la* Louis XIV., well designed, enclosing a general view of Oxford; and another, with the front of Christchurch, is accompanied by some good tedesche ornament of the succeeding style. The oval table is very nicely designed, and great praise is due to a round one with a landscape of pollards, and an excellent ornament; but the landscapes in these, and about a score of prettily-bordered cake or card-baskets, have no business there. There are five exquisite card-trays and about forty specimens of painting on flat surfaces, as book-covers, &c.; the borders generally are irreproachable, and some birds are very well drawn. Omitting the crochet-boxes, or whatever use they may be put to in Oxford, there are about forty specimens of views upon hand-screens; and in this place they are perhaps pardonable. One of the greatest offences against a cultivated taste is a miserable little occasional table. Manufacturers and visitors might take a useful hint from a coat of arms under a cardinal's hat.

Mr. Walton exhibits two excellent moresque trays—the best, perhaps, of their sort, for pattern and colouring; and a cabinet, which deserves equally honourable mention; a Gothic tray—perhaps the most unexceptionable of its kind, from its appropriate and chaste design, but the red and blue are not lucky in their contrast, and the green is not of a nice tone; a tazza, whose under side (all that can be seen) is very nice; and two coal-scuttles, good in their ornament. The seven very elegant and appropriately decorated little vases deserve especial commendation; yet with all these meritorious works, there are exhibited others as bad, such as a large vase, which shows fully want of taste in the application of ornaments which have irregular edges upon a flat surface, thus destroying the effect of the very decoration applied; to say nothing of whole sets of tea-trays with such subjects as Goëthe's "Faust," the Thames, Shannon, and Clyde, both sets very prettily touched indeed, but the border not so good in the last-named as in the first; three sea-pieces, which are very effective, though little better than hasty sketches, with a nice border of sea-weed and marine monsters; the tender passion, in a Louis XV. border; and the best of these sets, three seasons, very prettily sketched, in appropriate borders, of which the holly is very effective; and of all faults, an antique subject in sham relief on a tray. His great table is a superb painting of flowers, with too little regard to nature, as the convolvulus is as large or larger than the poppy, lily, or rose, and they are all too much of one tint. These are all in the Nave; but the same house has another exhibition of trays in the Ironmongery (p. 12) which demands consideration. Three are Elizabethan, of which that with the plain black ground is the best; but what can be said of the miserable imitation of mock jewels? There are also two pictures, one of Penshurst Hall, the other of Glammis Castle, both well sketched, but the last the best, yet degraded by mock jewellery; half-a-dozen flower pieces, chiefly well executed, but one with Neptune and Amphitrite beyond criticism. There are also three very good Gothic patterns; but, best of all, are a Grecian style tray with pearl, and two similar ones in black and gold, of the same pattern, differently treated; and a plain Elizabethan pattern, of gold lines upon a black ground.

It may seem little interesting to the reader to peruse a catalogue *raisonnée* of such works; but, if the effect of the most showy colouring in the Exposition on the public mind be considered, it will be admitted that these little objects carry with them more influence than the noblest works of nature or of art in their vicinity: it is not amusing, but really painful, to listen to the observations of most of the gazers at the part of the Nave dedicated to these works.

Messrs. Jennens and Betteridge have sought for assistance from educated men, but they have attached themselves to artists of high rank, from whom it is not fair to expect, without unusual study, a knowledge of the means by which the cabinet-maker produces effect; this is unfortunate, but it is luckily easily to be remedied. The mixture of good and bad taste in the following productions is remarkable. A double essencecoire with its bottles is very good—the contrast between the pale blue and black is agreeable; so are two writing-desks—one by Elkington, of Pandora and the Hours, while another in black and mother-of-pearl is not so fortunate: a liqueur case adorned with flowers is a notion at least questionable at the present time; while one with a simple mother-of-pearl ornament is very fair. The imitations of old japan are also clever; whilst an Egyptian hand-screen is shocking. The apotheosis of Homer for a writing-case and a crochet-box, both adorned by Elkington, are capital; a hand-screen, after Landseer, is allowable and very fairly painted, but such subjects are not *apropos* to tea-trays. The specimens of this article are not pleasing, though the Pacha's tray, one blaze of gold, is suitable to the Turkish taste. There is an exquisite candelabrum and an excellent plain writing tray and moresque lotus work-table. The Oriental chair, of a make not unsuited to the East, is faulty in its detail; but what can be said in excuse of the *causeuse* work-table, but that it is really "Brumagem?" Two Elizabethan, and a *legère* chair, are very fair; and high praise may be given to a writing-desk covered with gold and flowers. There is also a *rénaissance* style work-table of exquisite form, and not badly ornamented, by the side of a Raffaellesque piano, stool, and canterbury, all in black, with mother-of-pearl; again unexceptionable in outline, but over showy: here the upholsterer must be at a loss for the means of competition in most cases. M'Carthy's design for an ink and envelope stand is not bad; but the *Victoria regia* cot (in the body moresque and good) is generally in very poor taste—the upholsterer's work seems to be the best portion of it. A vase with Etruscan ornaments, in imitation of fancy glass, with or moulu mountings, is also excellent in its way, as are most of the book-covers, but exception must be made of those in which the harp and the sunflower are introduced. Two moresque tea-trays, and one designed by Redgrave, are very good indeed; and so is a little *portelievre*. This firm also produces a very nice specimen of flower-painting, and the Chinese pieces, as generally with other houses, are not discreditable. The worst taste seems to have been displayed in a tea-tray with shells and flowers, a gem book-cover, and two trays, one with the Royal arms, the other with the tea and coffee plants. The chessboard has a great want of harmony; and the figures, though designed by Bell, have not the finish of the set produced by Flaxman. But the great work of these exhibitors seems to be a chess, loo, and bagatelle-table combined; and, as this is about the largest size made by the process above described, it is clear that the invention of Bielefield must have great weight on such productions in future.

Mr. Sutcliff sends a large moresque tray in pale red and gold, one in gold and colours, and one in the Elizabethan style, which are of the first class. The reader knows already what is to be urged against another with a very well painted group of flowers; and, with regard to the others, nothing need be said, except that a very simple coral border is agreeable in all respects; as is also a dove-coloured writing-case, with flowers very prettily introduced in a good border: two Greek vases deserve condemnation, and we shall dismiss the rest of the articles with the observation intended to apply generally to all the exhibitors, that it is remarkable that a black ground should so constantly be chosen, when no colour can be much worse as a ground for flowers.

Messrs. Halbeard and Welling show two writing-cases with mother-of-pearl, which, as well as a *sécrétaire*, are excellent, as is a work-table inlaid on a black ground; but no excuse can be offered for a cabinet with a distinct mark of the opening of the lid passing through four landscapes.

Mr. Davis exhibits a very pretty idea for a work-box, surrounded by portraits of our Sovereigns, but the execution is not so good.

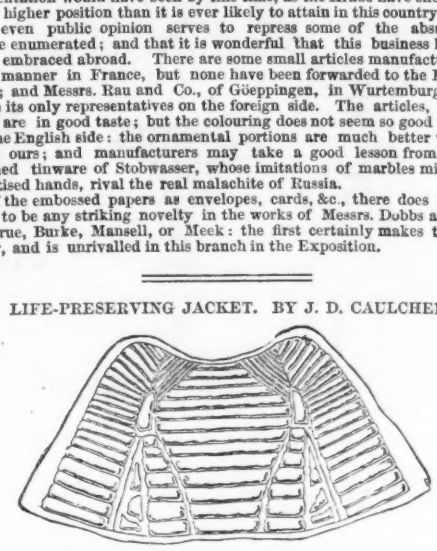
Mr. Turley, besides a specimen thirty years old, sends a screen with eight subjects very nicely painted. Somehow, all the work of this sort is tainted with the fault of pale blue skies charged with foggy clouds. One tray in this collection is actually an interior bounded only by a gold line: there is here, also, a triple cabinet which gives a very pretty notion for the top of a sideboard, instead of a glass. Two inkstands are also nice, and here are the only hearth-brooms, one of which is elegant. A subject from the "Book of Beauty" is rendered exceedingly nicely as a book-cover; and there are some excellent bits of flower-painting.

The subject now draws to a close. Except a fire-screen, very nicely ornamented, M'Callum and Hodgson lay before us nothing particularly calling for notice. The prevalence of coloured mother-o'-pearl, and of flower ornament, is general; and the taste is by no means that which arrests our attention. Mr. Lane has one object worthy of our especial notice—an inkstand, in an Elizabethan dish; and another is to be seen in the collection of Fotherape and Co.: but the general style of the last-named group of exhibitors is so different from that to which the reader's attention was called at the beginning of this notice, that it is no longer a pleasing duty to criticise.

Two remarks may be added, to the effect, that, if the strictest sense were given to the commandment not to make images, the school of ornamentation would have been by this time, as the Arabs have shown, in a far higher position than it is ever likely to attain in this country, where not even public opinion serves to repress some of the absurdities above enumerated; and that it is wonderful that this business has not been embraced abroad. There are some small articles manufactured in this manner in France, but none have been forwarded to the Exposition; and Messrs. Rau and Co., of Göeppingen, in Wurtemburg, seem to be its only representatives on the foreign side. The articles, though few, are in good taste; but the colouring does not seem so good as that on the English side: the ornamental portions are much better worked than ours; and manufacturers may take a good lesson from the japanned tinware of Stobwasser, whose imitations of marbles might, in practised hands, rival the real malachite of Russia.

Of the embossed papers as envelopes, cards, &c., there does not appear to be any striking novelty in the works of Messrs. Dubbs and Co., Delarue, Burke, Mansell, or Meek: the first certainly makes the best show, and is unrivalled in this branch in the Exposition.

LIFE-PRESERVING JACKET. BY J. D. CAULCHER.



This is one of many contrivances for the preservation of life in the event of accidental immersion. The ribs are of cork; and it is so fashioned as to be capable of being worn unobserved under a coat or mantle; and, in consequence of its pliability, can be used without inconvenience whilst rowing a boat. When not required, it can be folded up and stowed away in a small space.

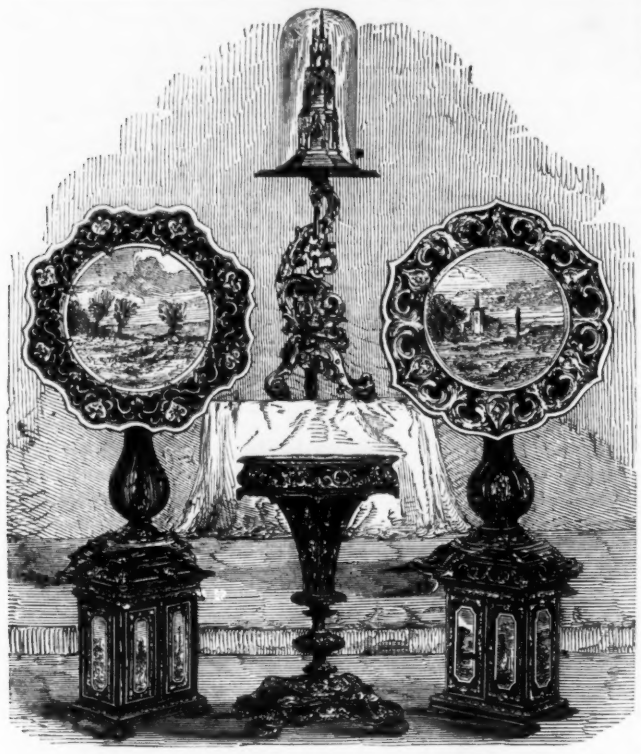
RELIEVO LEATHER.

The specimens of Relievo Leathers in the Crystal Palace, although exhibited but by three firms, the two French and the other English, are identical in their manufacture and mode of treatment, and are of sufficient importance to demand a distinct notice. From all that we can collect in reference to the earliest history of the art, it is clearly to be traced as far back as 900 years before Christ, the British Museum possessing some scraps and pieces of gilt leather straps taken from mummies, upon which are relieved figurements of King Orsokon adoring the god Bhem, and others of Amoun Ra Harsaphes. Italy, Spain, and Flanders centuries ago were eminent for their relieved leathers, the flat or ground-work of which was usually gilded, silvered, or coloured; and recently Germany, France, and more especially Great Britain, took the lead in this department of art manufacture. An able writer, while dwelling with much gusto upon this subject, says, the distinct relief in which the patterns could be embossed, the brilliancy of colour of which the leather was susceptible, the high burnish which could be given to the gold, the durability, ease of application, and resistance of damp, rendered the material peculiarly fitted for panels and hangings. It was a warm and gorgeous covering for the walls, affording infinite scope for art, taste, workmanship, and heraldic emblazonment, and the exclusiveness of wealth, and was therefore largely used in the decoration of palaces and baronial halls. At Blenheim, Hinchinbrook House, Norwich Palace, Knockton Hall, at Lord Scarborough's, and in many private collections, leather tapestries are still to be found, preserving the utmost brilliancy of colour and gilding. Some of the leather tapestries at Hinchinbrook, it is said, bore the name of Titian. About 1531 or 1532, Henry VIII. built a manor-house near Eastham Church, in Essex, with a high, square tower, that during her sort of year of probation Anne Boleyn might enjoy the prospect of the Royal Park at Greenwich. This tower had hangings of the most gorgeous gold leather, which remained until fifty years since, when the house coming into the hands of a proprietor with no especial love for the memory of the Bluff Harry, nor the sad hauntings of the fate of Anne Boleyn, nor the old art and workmanship of leather decoration, but a clear perception that in so many yards of gilt leather there must be some weight of real gold, had the tapestries torn down, sent to the goldsmith's furnace, and some £60 of pure gold gathered from the ashes.

In the French department, No. 1202, M. Dulud, of Paris, exhibits several pieces of tapestry and ornamental hangings in embossed leather, which appear identical in subject and the method of their preparation with those of Mr. Leake in the Fine Art Court. He likewise shows two elbow-chairs, lined with embossed leather, and other articles of furniture similarly decorated, amongst which a cabinet is the best, and which serves admirably to show the fitness of leather where the appearance of elaborate carving is required. Opposite to these is

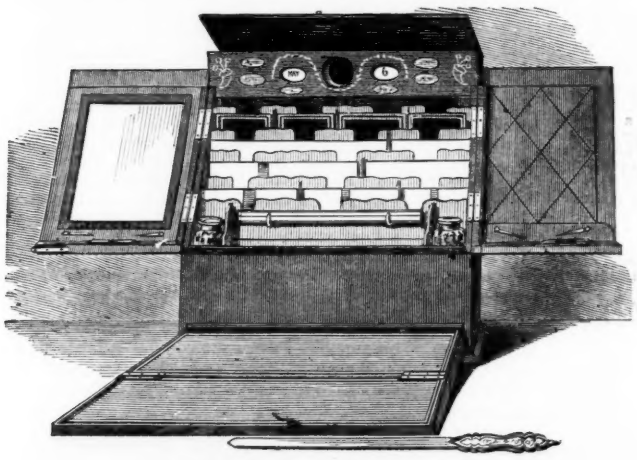
No. 164, A. A. Despreaux, a collection of Venetian leathers of similar pretensions, but differing as widely as possible in their result. The patterns selected as models are well known by us to be very admirably adapted for the purpose; but whether to disguise the original source, or from inefficiency in the operatives, nothing could have been more impotent than the conclusion, and scarcely anything more execrable in taste than the method in which they are daubed with colour. All drawing, all grace, and all notions of chromatic harmony are cast to the winds. If these in any way resemble the decorated leathers at the period of their decline and ultimate abandonment, we can scarcely wonder at the total extinction of this branch of art manufacture in those countries which were eager to appreciate it in its palmy days.

Mr. Leake's (of Warwick-street, Golden-square) collection is to be found in the Fine Art Court. To this gentleman's perseverance we are indebted for the revival of this branch of art manufacture in this country; and we do but justice in stating, that the models from which he has hitherto made selections are of the very best and most classic styles. It may be further added, that the leathers relieved by Mr. Leek's process are much more sharp, and of greater boldness, than those of former day, and that they exhibit a degree of *undercutting*, so to speak, which is characteristic of the modern school, and never to be met with in the ancient examples. Leather, as a material, is singularly susceptible of an imitative quality: it can be made to represent almost any kind of wood; and an upright scriptural figure subject, framed, and lying upon the counter, has so close a resemblance to an old copper casting, that it is only by close examination the deception is detected. The architectural examples of the Gothic eras, and the time of Elizabeth, &c., are worthy of all praise.



GROUP OF ARTICLES IN PAPIER MACHE.—BY SPIERS AND SON, OXFORD.

The contributions of Messrs. Spiers and Son, of Oxford, are shown in a semi-octagonal dome-shaped glass case in the Nave, designed by Mr. Owen Jones, and fitted up by Messrs. Robert Henderson. They consist of tables, cabinets, desks, work-boxes, albums, portfolios, waiters, tea-caddies, &c., in *papier maché*, ornamented with views of the colleges, public buildings, college gardens, and other objects of interest in the University and its neighbourhood. We are happy to notice in them endeavours after a truer and less meretricious style of ornamentation. As the taste of the Oxford people seems to run in a contrary direction to that of the usual purchasers of this description of goods, this firm have taken up the ornamentation of *papier maché* in a new style. Instead of adopting the usual subjects of birds, flowers, Chinese landscapes, arabesque or other less pleasing styles, they conceived that picturesque representations of architectural and landscape subjects, treated in an artist-like manner, to which other ornament should be subservient, would be equally interesting to many persons, equally popular, and more conducive to the diffusion of a sound taste. Messrs. Spiers immortalise their native and most learned city in every possible point of view and upon every possible variety of article. We have Oxford from the fields, and Oxford from the river, Oxford in the streets, Oxford colleges, Oxford halls, Oxford staircases, and Oxford seals. These paintings, which are scattered over desks, tables secrétaires, and work-boxes, are all beautifully executed.



DESPATCH-BOX.—BY MESSRS. WALLER.

The commercial and diplomatic despatch writing-case manufactured and exhibited by Messrs. Waller, is the invention of Mr. F. Whishaw. This new and complete article contains every requisite for an extensive or limited correspondence. The much-approved open paper and envelope rack, and complete shut-up slope desk, being combined, so as to form a very useful portable and unique appendage to the writing-table, as well as a useful counting-house companion. It reflects much credit on the manufacturers, as also on the ingenuity of the inventor.

MEDIÆVAL WAX CANDLES. BY TUCKER AND CO.

(Engraved on page 461).

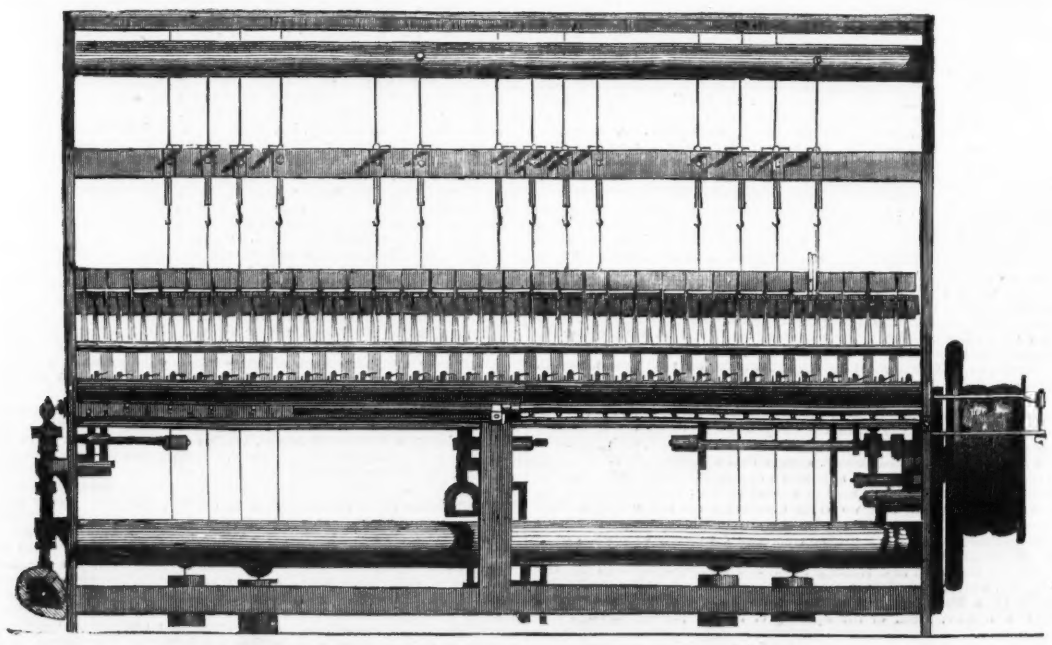
In our notice of the Mediæval Court, we unintentionally omitted to mention that the candles therein exhibited are manufactured by Messrs. Francis Tucker and Co., of Kensington; and as they are remarkable amongst the revivals of the present age, we will give a Sketch of some of them, together with some notes of the rites of the Romish Church, to which they have reference. The large candle, which is called a "Paschal Candle," is pretended to be symbolical of the glory of Christ's resurrection. It is lighted during the offices of the Church from Easter to the Ascension. It is elaborately painted round the base with various inscriptions and devices. The triple candle, which is composed of three equal parts twisted together, is used on Holy Saturday for the "Lumen Christi," in the procession from the church porch. The twisted torch is a revival of those borne on various occasions in the dark ages, especially at funeral processions and entertainments. There are beautiful specimens of twisted wax candles, and the only instances of the kind in the Exhibition. The smaller candles, of which there are several, are painted for altars, &c. The custom of enriching candles for sacred purposes, by painting and gilding, is very ancient; and the same principle was formerly carried out with regard to candles for domestic use in great feasts, these being painted with heraldic devices.

FOLDING SCREEN OF ENCAUSTIC PAINTINGS. BY J. H. EARLE.

Mr. Earle's contribution being in encaustic, the painting has found admission to the Crystal Palace, as not coming within the rule excluding works of painting in oil, water-colour, and fresco; and it is one of the evidences of the absurdity of that regulation. It is a production of ordinary merit, and is entitled to consideration only in the light of a piece of room decoration. The subjects are in imitation of antique gems, representing the story of Cupid and Psyche. 1. Cupid, stung by a bee, shows his wounded finger to Venus. 2. Psyche contemplating the murder of Cupid. 3. Psyche and Pan. 4. Psyche propitiates Ceres. 5. Psyche giving the soporific cakes. 6. The Eagle giving the vase of black water to Psyche. 7. Psyche receiving the casket of perfumes from Proserpine. 8. Psyche with the casket of perfume received from Proserpine. 9. Psyche presenting the casket to Venus, which appeases her anger and extinguishes her jealousy. 10. Mercury, commanded by Jupiter, bringing Psyche back to Olympus. 11. Psyche transported by Zephyr to a grove, and placed in the arms of Cupid. 12. Cupid and Psyche in the bower. The Engraving of this screen will be found on page 472.

SILVER CUP.—BY FRIES, OF ZURICH, SWITZERLAND.

With the exception of watches, the contributions in the precious metals from Switzerland are rare. The Cup before us, in oxidized silver with emblems of war, the national cross, &c., is remarkable more for the curiosity of the devices than for its size or beauty of design.



SHUTTLELESS LOOM.—BY T. S. REED AND CO., DERBY.—(SEE PAGE 471.)

CHATELAINE.—BY THORNHILL, BOND-STREET.

We have here a very complete specimen of this description of ornamental paraphernalia, all the articles being finished with great correctness.

GENTLEMAN'S DRESSING-CASE. BY EDWARDS.

(Engraved upon the next page.)

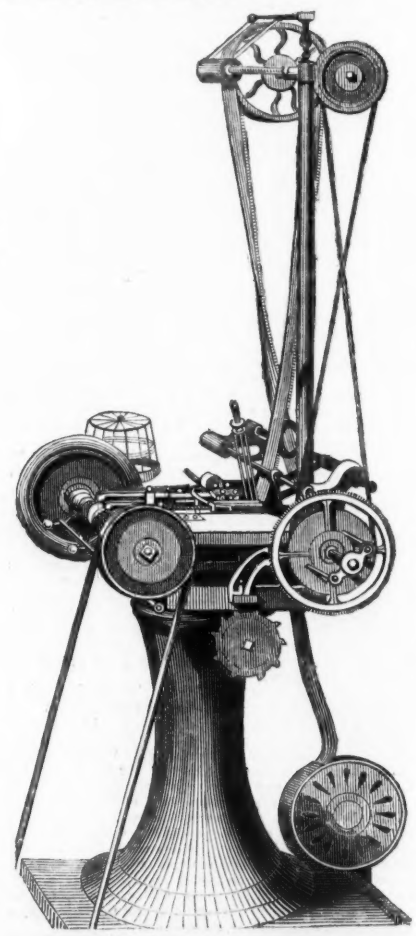
This beautiful piece of workmanship, both tasteful and substantial, does infinite credit to the old-established firm whence it emanates; the fittings up are very elegant. It consists of three distinct departments, either of which can be raised to any convenient elevation, and remain stationary whilst required. The hinge is on a new principle, the invention (patent) of the exhibitors.

GENTLEMAN'S DESPATCH AND WRITING-CASE. BY EDWARDS.

This, also, is an admirable specimen of workmanship; a despatch and writing-case combined, to open on the same principle as the dressing-case. It is covered with purple morocco, and lined with purple velvet. The instruments and fittings are of mother-of-pearl and gold. The ink and light open by the pressure of an extra spring, which obviates the inconvenience of removing them when required for use. An Engraving of this elegant article will be found on the next page.

CARD-SETTING MACHINE. BY SYKES BROTHERS.

This card-setting machine is exhibited by Messrs. Joseph Sykes Brothers, card-manufacturers, Acre-mills, Lindley, near Huddersfield. It is one of the most ingenious and beautiful pieces of machinery in the Exhibition, and produces the complete card from the wire and leather, cloth, or India-rubber.

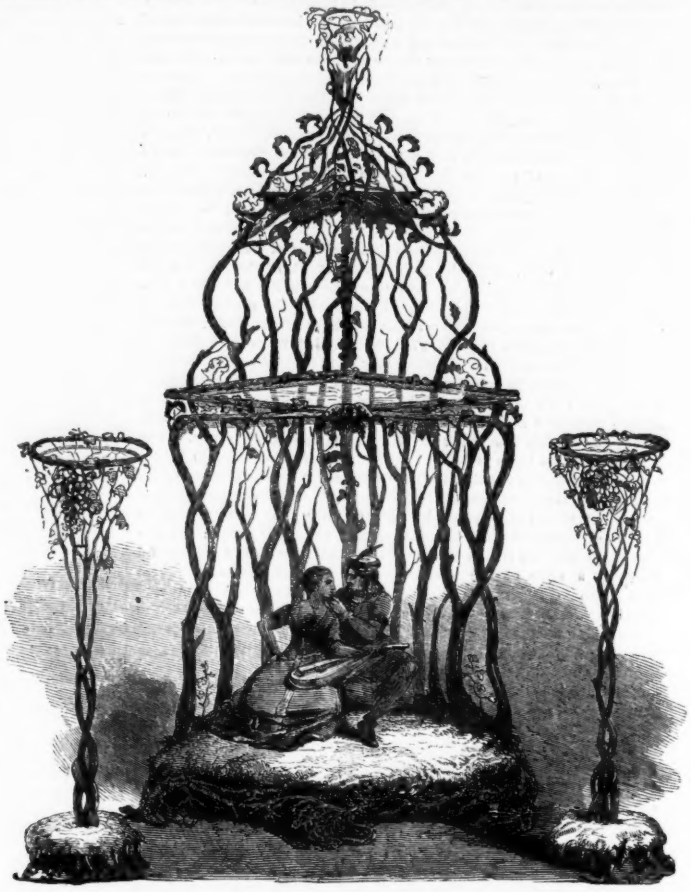


CARD-SETTING MACHINE.—BY SYKES BROTHERS.

FOUNTAIN.—BY JABEZ JAMES.—(SEE PAGE 464.)

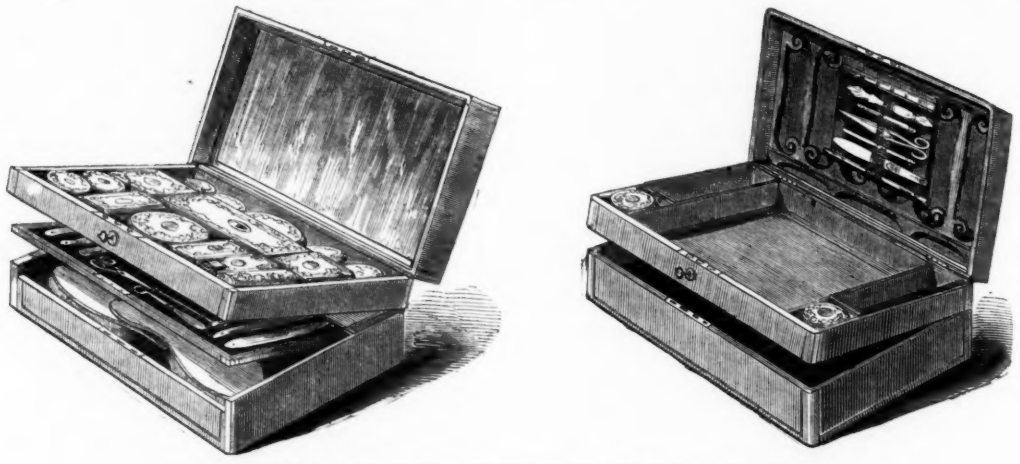
PAXTON FURNITURE. BY FLEISCHMANN, OF SONNENBERG.

Fleischmann, of Sonnenberg, in the Duchy of Saxe-Meiningen, exhibits a variety of decorative subjects, in a style peculiar to many provincial parts of Germany; a style in which lightness of material is combined with great fancifulness of device, and much gaudiness of colouring, gilding, &c. These things would hardly pass muster in busy, business-like London, either as works of utility or ornament; but in the villa residences



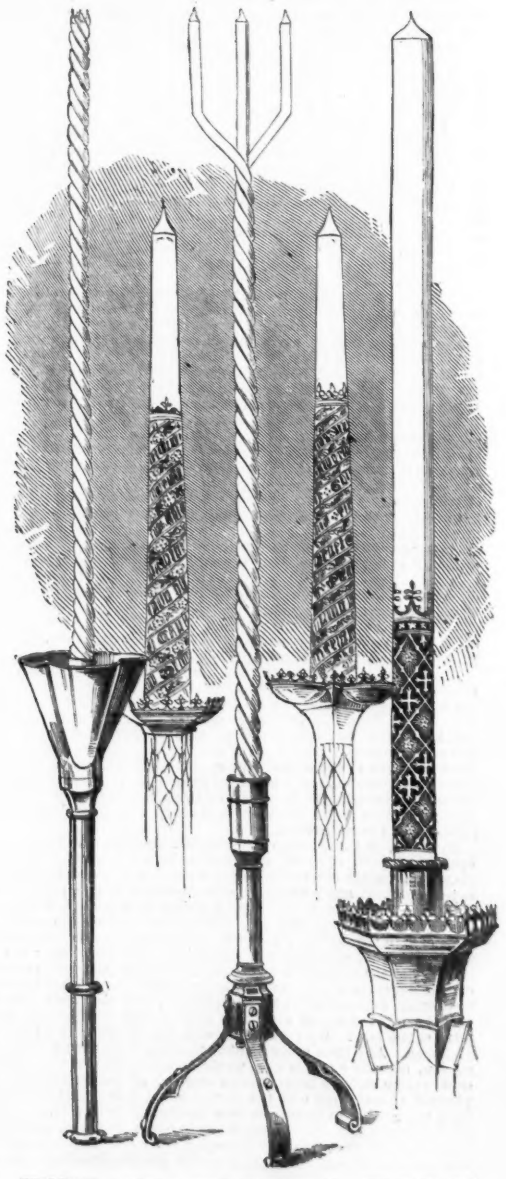
PAXTON FURNITURE.—BY A. FLEISCHMANN, OF SONNENBERG.

n the Rhenish provinces they serve to fill up a vacant corner, and to gratify the eye of a simple-minded people with representations of natural objects, which, though of every-day recurrence, are esteemed as emblems of their nationality: the vine, the chase, the guitar, and a lover, make up the sum of a German's earthly enjoyments. Iron and glass are the chief materials of these articles, and which, in consequence, have been named, in honour of the architect of the Crystal Palace, "Paxton Furniture."



DRESSING-CASE AND WRITING-CASE.—BY EDWARDS, OF KING-STREET.—(SEE PAGE 460.)

GROUP OF CHINA.—BY MESSRS. GOODE.—(SEE PAGE 465.)



MEDIÆVAL CANDLES.—BY TUCKER AND CO.—(SEE PAGE 460.)

MUSICAL INSTRUMENTS.

(FOURTH NOTICE.)

It has often been a question—and one which would be most interesting to solve satisfactorily—whether the flute, so popular among the Greeks and Romans and other nations of antiquity, was the same in form as the German or transverse flute of the present day; there are no correct data on which to form a direct answer to the question. We have no instruments of the kind handed down to us, nor any sculptured representation answering to the description, for the musical instruments, as well as the music of the ancients, are enveloped in almost impenetrable mystery. It is true, that, on some Roman tesselated pavement, there was discovered the representation of a young man playing on an instrument similar to the flute, held transversely to the mouth; and, we have heard, there is an antique statue of a fawn, with a pipe, in the same position; but we have no means of proving this was the flute of the ancient Greeks. When the flute is spoken of by the Greek and Latin authors, it is evident not a single instrument, but a class of instruments is alluded to. If we were, however, to hazard an opinion on the subject, we should be inclined to hold with those who believe that the flute of the ancients was open at both ends, and held perpendicularly when played. We are strengthened in this opinion by the fact of there being right and left-handed flutes, and that they differed in tone, and were employed under various circumstances, according to the character of the music, whether solemn or lively, grave or gay. The right-handed flutes gave the bass, and the left-handed the treble notes: they were often played alternately, and it will at once be perceived, that while it would be perfectly possible to play right and left-handed flutes held perpendicularly, and to change them with facility, it would be exceedingly awkward and difficult to do the same thing with the instrument held transversely. How far this inference helps to decide the question, we must leave to be determined by others; but that the flute was held in the highest estimation by the Greeks and Romans, and that it was their most important musical instrument, there can be no doubt. Prizes were contended for by the most celebrated performers at the Olympian and other games; the professors and teachers of the instrument realised handsome fortunes, and lived in a style of the greatest luxury and extravagance. There were also colleges of flute-players, and bands of fifty and 100 performers. Among the Grecian and Roman ladies there were also several celebrated players, and, like the pianoforte at the present day, it was considered an indispensable accomplishment among the highly educated and fashionable. It was also the principal musical instrument employed in the sacred service of the temples. Even Xenophon thought it not unworthy of him to give his advice to professors; and to a young man who did not meet with the patronage he desired, he recommends "to take a large house and live in great style, that he may be *thought* a first-rate performer." This advice, how to make a reputation, is often enough acted upon in the present day, much to the hurt of the really clever and honest professor; and this branch, at least, of the art, or rather arts, of the musician seems to have undergone little change since the historian of Cyrus.

We must now turn to the flutes in the Great Exhibition; but first we will give a glance at the improvements introduced by Böhm of Munich.

M. Böhm produced his first flute in 1832; but it was brought into general notice by the Academy of Sciences at Paris, who, on its being brought before them, with the ready attention to scientific improvement which characterises that distinguished body, at once named a commission to inquire into its merits, whose report was unanimously in its favour, and who at once recommended its adoption in the Conservatoire of Paris in preference to the old flute. Had it not been for this favourable report, and the alacrity with which every improvement in art or science is taken up on the Continent, we are afraid the flute of Böhm would have been long ere it found its way into general use, and would have had an overwhelming amount of prejudice to contend against, prejudice of the worst kind, namely, that founded in ignorance.

The improvements in Böhm's first flute consisted in the correct distribution of the holes at equal relative distances, and in making them of equal sizes. This was effected by following out the principle on which a single note is produced, and applying it to the production of others. Our readers will at once understand this, by considering that any tube of a certain given length and diameter will, when sounded, give out a certain note of a certain pitch Assume that note to be C natural, by cutting off a proportionate quantity of the tube the tone is sharpened, and C sharp can be produced; by again cutting off the same quantity, you get the next note higher, and so on until the octave is completed. Instead, however, of shortening the tube in the flute, and other instruments of the kind, holes are bored at the same distances that the tube would be shortened, which answers the same purpose. Now, supposing the diameter of the tube to be the same throughout, an equal quantity ought to be cut off to produce each note, therefore the holes answering the same purpose ought to be equidistant. We may observe that there may be some slight modification of these principles to answer particular purposes, such as the equal temperament in tuning, &c.

The other improvement in Böhm's first flute is the substitution of open for closed keys, he having discovered that not only was it mechanically easier to keep a key open with a spring which was not required to be so strong to keep it open as to keep it perfectly closed, but also that the closed keys acted as a damper to the next note above, and produced a muffled tone, or what is technically termed a veiled note. This was Böhm's first flute, and how it was appreciated on the Continent we have already shewn. He next found, that, however exactly he placed the holes, some of the notes were still unequal—some being weaker, and not so clear and full as the others. It then occurred to him, that there must be something radically incorrect in the primary construction of the tube; he therefore substituted a perfectly cylindrical in the place of the conical bore, and introduced his parabola head joint, which has the effect of refracting and propelling the sound with greater velocity, and, though not necessary to the production of perfect and equal notes (the correct proportions of the cylinder and the placing the hole effecting this), is of great advantage as an aid to quicker and more facile execution. It was evident that in the conical bore the notes in the narrow part of the tube could not be so clear and powerful as in the wide, and that, by adopting a perfect cylinder, there would be the same force to every note, and they would consequently be equal.

This was the second improvement of Böhm, and we see that he had entirely to remodel the construction of the instrument. The same principles apply also to other wind intruments.

Seeing how self-evident and simple are the principles upon which these effective improvements have been founded, the wonder is that they were not adopted before; but it must be borne in mind, that the transition from the old flute, A, B, C, to the German flute, and thence to the present keyed flute, was not effected at once: note by note, and key by key, was added to suit the necessities of the performer, or the idea of improvement possessed by the manufacturer. An improved but imperfect instrument had grown up, and while, from time to time, considerable talent and ingenuity was employed in perfecting it, the makers and professors were hardly prepared for an alteration in the very first principles of the construction of the instrument.

M. Böhm, in the Foreign Department, Bavaria (No. 23), exhibits a cylindrical flute, of silver, with the following improvements—correct proportions in the construction of the tube, a new arrangement of the key-mechanism, and a new form of embouchure of gold; *flute d'amour*, in B flat, in German silver; and a model of a patent hautboy, constructed on the same principles. These three instruments are in a small glass case in the Gallery; they are not so remarkable for their high finish in point of workmanship, though in this particular they are excellent, as for the disposition of the keys, which are arranged to come under the fingers in a more natural and regular order. At first sight, the mechanism appears somewhat complicated, and we have heard this brought forward as an argument against Böhm's improved arrangement of the keys. We cannot, however, but consider it an ill-founded prejudice. Any piece of mechanism that has more than a single simple motion, according to this rule, would be complicated; we might with equal reason call the large marine engine, of Bolton and Watt, complicated, as compared with the primitive but interesting model of the early application of steam-power to locomotion by its side. When every piece of mechanism has its proper employment and use, and does not interfere with the action of the other, there can be no complication. The first repetition action applied to the grand pianoforte was called complicated; yet we now see that no instrument of the kind is considered complete without.

We now turn to the French department:—

M. Clair Godfroy, Sen., of Paris (No. 454), exhibits wood and silver flutes of fine workmanship and high finish in every particular.

M. Tulon (398) exhibits improved flutes, with a new disposition of the keys, and hautboy, of first-class construction and make.

M. Bouffet, Jun. (442), exhibits clarionets on a new plan, flutes, oboes, and bassoons, for military bands, of excellent construction.

M. Tribert (1510) exhibits flutes and clarionets, highly finished, and a clarionet in tortoiseshell and silver. M. Breton (No. 1555) crystal and wooden flutes, on Böhm's principle, and clarionet, also on Böhm's principle, of very excellent make, but we cannot see the beauty or utility of the crystal flutes. The other exhibitors in this department are M. Besson (424) and M. Roth (993).

In the Austrian department, M. Uhlmann, of Vienna (No. 155), exhibits hautboys and clarionets elegantly mounted and of fine workmanship. In the Belgian department, M. Mahillon, of Brussels, exhibits clarionets, &c. From Denmark, M. Silboe, of Copenhagen (No. 31), exhibits an ebony flute, with eleven silver keys, and an archimedean bore; clarionet, in B. flat, with two mouth-pieces, on J. Van Müller's construction, and also hautboy, on the older Dresden pattern.

We have also flutes and other wind instruments of wood from the Zollverein, Saxony, and other parts of Germany; and in the American department, M. Eisenbrant (481), of New York, exhibits some highly finished flutes, with jewelled keys. In the English department, Messrs. Rudall and Rose (No. 530) exhibit Böhm's patent flute, Carte's patent flutes in silver and wood, and the improved ordinary flute: these instruments are of the highest possible finish, and in Carte's patent flutes the keys are arranged to give superior facilities for execution. Before the improvements of Böhm, Messrs. Rudall and Rose had arrived at the greatest attainable perfection in the manufacture of their flutes on the old system, not having the good fortune to light on the same improvements as Böhm: they, however, knew how to appreciate them, and at once made arrangements with him which secured to them the sole right of manufacturing flutes on his principle in England.

Mr. Card (546) exhibits silver, gold, and electro-silvered and other flutes, of excellent make. Mr. Siccama (535) exhibits specimens of his diatonic flutes; and Mr. Potter (538), Clinton's flutes, with the old fingering throughout. Messrs. Paske and Kœnig also exhibit flutes.

Before leaving the subject of flutes, let us suggest to the manufacturers and professors of the instrument the propriety and necessity of combining together, and deciding on the adoption of one perfect system of fingering and disposition of the keys. At present there are no less than six or seven systems; and great as have been the improvements on the instrument, and beautiful as it may be in tone and perfect in intonation, it can never become really popular or do otherwise than decline, as undoubtedly it has, so long as this defect exists, and the learner, who imagines he has acquired the art of flute-playing, finds to his mortification, that he has only learnt the system, perhaps erroneous, of a particular master or manufacturer. Who would not, when this is the case, abandon the instrument in disgust?

Our limits would not allow us to enter into the history of the violin, and to trace its progressive improvement would be a difficult matter. The violin, unlike all other musical instruments, has remained stationary, and has undergone little or no improvement since the days of the Amati's, Stainer, Guaruarius, and Straduarius; and in the hands of these inimitable masters the instrument seems to have reached its greatest perfection. Differing, again, from other musical instruments, the violin improves by age, and hence the instruments of the old masters fetch immense prices, and those by Amati and Straduarius have realised as much as from 200 to 300 guineas for a perfect instrument in fine preservation, and £70 to £80, or £100 would be considered cheap for a good Amati. Straduarius, at the present moment, is in much request, and fetches the highest price.

Commencing with the violins exhibited in the French department by Villaume of Paris (735), the style and workmanship of the famous Italian makers of Cremona—Amati, Straduarius, Joseph Guaruarius—are imitated with surprising truthfulness and beauty, and the appearance of age and wear is given to them with remarkable exactness. Those who are aware that the knife is one of the principal tools employed in the construction of the violin, and that thence the cut and form of the scroll and sound-holes peculiar to each maker, is almost as well known and distinguishable as the style of a person's handwriting, will appreciate the cleverness and beauty of these imitations. The varnish of these instruments, however, seems deficient in richness and brilliancy. Mr. Villaume, also, exhibits a violoncello and bass of excellent model, and a gigantic double bass with machine head and stops; also bows made by machinery patented.

M. Bonnardel (421) exhibits some well-made violins.

M. Jacquot (547) exhibits violins and violoncellos, and

MM. Husson and Buthoæ (885), among other instruments, violins of very good workmanship.

In the Austrian department we have also some beautiful models.

C. Enrico, of Cremona (147), exhibits a violin of great elegance and beauty, remarkable also for the brilliancy of its varnish.

M. Bittner (144), of Vienna, exhibits violins, tenor and violoncello, exceedingly good, and worthy of notice.

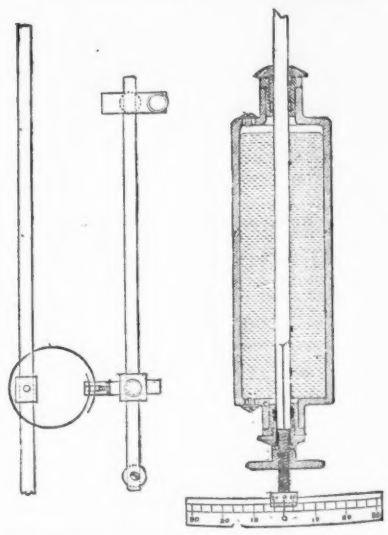
M. Kosselt (145), of Turnan, Bohemia, violoncello, inlaid with mother-o'-pearl: and M. Herzlieb, of Grätz, Styria, violins, tenor and violoncello, of first-rate workmanship We have also in this department some fine specimens of Italian strings, from Padua and Venice. There are also a considerable number of violins, tenor violoncellos, and double basses, exhibited in their different departments, from various parts of Germany; but, however good they may be in tone, they display neither the elegance of form or finish of the violins on the Italian model. There is also a small violin in the Russian department, the upper part made of fir, the sides, back, &c., of plane-wood, by H. Ruderd, of Warsaw; like everything else in this department, it is of excellent workmanship. In the English department, Class 10 (537), Messrs. Purdy and Fendt exhibit violins, violoncellos, and a double bass, in which, without servilely copying the old Cremona makers, they have succeeded in producing very beautiful models. In these instruments they have not attempted any artificial seasoning or colouring of the wood by baking it, and saturating it in lime, to cause effects which only age should give, but have produced new instruments on as perfect a model as possible, in which the wood is in no way weakened or impaired, but left in its natural state and appearance. This was the method of the old Cremona makers; had they done otherwise, their instruments would never have preserved their freshness and strength, matured by age, for a period of upwards of 200 years. Messrs. Purday and Findt have also employed a varnish which they think, with time, will equal in brilliancy and durability the celebrated varnish used by the old Italian makers, the preparation and application of which is a secret supposed to be lost. It seems to answer very well, but we think climate has much to do with it, and that no varnish will dry so well in the damp atmosphere of this country, and that the excellence of the old varnish is in a great measure attributable to the warm dry climate of southern Italy, and which no artificial heat can equal; the same causes are in operation in America at the present moment. The cabinet-makers of New York employ a copal varnish for their furniture, pianofortes, &c., greatly surpassing in brilliancy and durability our French polish, but which the moist atmosphere of our own climate makes it impossible to apply in the same perfection as in their dry and pure air.

Messrs. Betts (No. 519) exhibit two violins, correctly modelled and finished with great care. Mr. Foster (509) exhibits a violin and violoncello made after the models of his grandfather, well known as "Old Foster," whose instruments are still much esteemed for their clean workmanship and excellent tone.

DAGUERREOTYPE ACCELERATOR.

It is generally known that the faithful pourtrayal of either animate or inanimate objects by the Daguerréotype depends very materially upon the volume of light at that period existing, and that, in such respect, those climates which are the brightest and clearest are necessarily the best for the development of this wonderful power. In winter and in twilight, or upon a dull day, all efforts to obtain a sharp and correct likeness are next to impossible; and those circumstances are often subjects of great disappointment both to the sitter and to the operator. Any means by which such obstacles could be got rid of must be of interest; and, without dwelling upon the length of time and patient perseverance which it has cost the discoverer before he brought his invention to perfection, we may briefly introduce the apparatus of Mr. Beauford, of Hastings, to the notice of those most interested. By it well-defined likenesses are taken, equal to those of the strongest sunlight, in an aërial medium many degrees less in luminous power. It has the advantage of giving to the ordinary apparatus an enlarged scope or field of vision; and thus but a comparatively small apartment is necessary for its successful action. It assists in transferring the most delicate tracery of the muscles and even the veins of the flesh, and imparts that roundness to the parts observable in nature. But what, perhaps, is of equal importance with those advantages we have named, is that it does this in less time than usual, and thereby less risk is incurred of the likeness being marred or bleared by the movement of the sitter. In the latter respect it is of great use where children are the models—one of the specimens exhibited in the Crystal Palace absolutely showing the transient smile of infantine simplicity, which must have lasted but a moment, and that moment seized.

LOSEBY'S COMPENSATING PENDULUM.



The above is a new form of compensating mercurial pendulum, invented by Loseby, of Islington. It exhibits several important modifications of the usual form of pendulum, and is a very beautiful piece of mechanism. We shall recur to this, and some others of Mr. Loseby's productions in the Horological department, in a future notice.

SCOTLAND.—THE LOWLANDS.

Having given a considerable portion of our columns to the consideration of the Highland stand in the Exhibition, we feel we must not overlook the Lowland stand of James Locke (Class 12, No. 18), in which we find a select variety of general Scotch goods, and a full assortment of the real Scotch wool make, and beautiful heather and stone colours, arranged in a picturesque group. These mixtures are considered to be among the best goods manufactured of our home wool. A fleece from a Cheviot wedder is also shown, together with the various processes by which it is prepared for the loom. We understand that the Albert grey tweed was first suggested to Mr. Locke when fishing near Roxburgh Castle, by the grey moss or growth which covered the bark of the trees. It so happened that Prince Albert had a dress of this very kind on his first visit to Scotland for deer-stalking.

Mr. Locke was one of the first, if not the first, who introduced Scotch goods into the London markets, more particularly the maud, in respect to which a few particulars may not be inappropriate at the present time of year.

The railroads have done much for this article; exposure to the wet and the inclemency of the weather being much less in that mode of travelling than on the coach, they are now fast superseding the cape and macintosh in the opinion of many gentlemen very competent, from their experience, to judge of the superiority of the one or the other. The genial warmth of the maud, when wrapped across the chest or round the body in its different folds, is now felt to be more comfortable than the cold waterproofs; in fact, it is only known by those who have worn the same stuff in trousers, viz. "shepherd's plaid," that it is both warm and cold, for, singular as it may appear, it is cool in summer, and it is warm in winter! The maud, being made of the same material, partakes of both these rare qualities. In the carriage they are now recommended by several of the faculty to invalids as light and warm, allowing the perspiration to escape freely, and possessing an easiness of wear which is very delightful, when worn either about the body or wrapped around the legs. Gentlemen find them a very comfortable companion when travelling abroad, either as a defence from rain during the day or as a counterpane on their bed during the night; many sleep in them as a talisman against a damp bed; and it is a well-known fact that, when you get wet in any woollen article, you are less likely to catch cold than in any other material, such as cotton or linen. It is a common custom among the shepherds of the present day to wet their mauds to keep out the cold; nor does this singular mode of defence from the inclemency of the weather, to which they by their occupation are often subjected, appear to be a modern discovery, for Birt, who resided among the Highlanders and wrote in the year 1725, says:—"The Highlanders were so accustomed to sleep in the open air, that the want of shelter was of little consequence to them. It was usual before they lay down to dip their plaids in water, by which the cloth was less pervious to the wind." It will be found on trial, that, in travelling, as the maud gets saturated with rain it gets warmer; and many gentlemen have said, that in ten or twelve hours' rain (say from Edinburgh to Carlisle) they have managed to keep themselves dry with one of ordinary size.

The maud, then, may be said to be a long scarf, from 3 yards to 4½ yards long, generally 1½ yard wide, and sometimes 2 yards. The most common colour is the check of six threads of black and six of white, known technically as a six-and-six check, called the Lowland or Border check; and in the counties of Northumberland, Cumberland, Roxburgh, and Dumfries, when a shepherd-boy first goes "to service out amang the farmers roun," the "gudewife" cuts a "whang," of about three or four yards length, from her home-spun plaiden web, to keep him warm when herding the sheep on the hills. As the youth grows and gets bigger, the maud which has been thus homely made is, of course, increased in size.

The plaid, as worn in the Highland costume, is fastened with a brooch on the left shoulder, and is, doubtless, of very ancient origin. King Robert the Bruce's brooch was presented by the Hon. Fox Maule to Prince Albert, on the occasion of her Majesty's visit to Scotland. The Lowlanders, on the contrary, use the right shoulder. (See Sir Walter Scott's monument at Glasgow.)

The Highland regiments wear the plaid in full dress: the 42nd use the Campbell, the 71st the Mackenzie (or M'Leod), the 72nd wear the Prince Charlie, the 74th have adopted the Forbes, the 78th a smaller set of Mackenzie, the 79th (what is called) the Cameron or M'Donald with yellow stripe, the 92nd have the Gordon with single stripe of yellow, and the 93rd the large Campbell, generally called the Sutherland.

These are all worn open at the ends, and about 3½ yards in length, in fine woollen, or a coarser kind for undress, the silk poplin being much out of use since the woollen plaids are made in such fine material.

The maud, on the contrary, is generally shut or sewed up at one end. When worn by the shepherds or drovers, who often carry provisions and other articles of use in it—sometimes a young lamb!—it is called a "pock" or "neuke;" and the old adage, "to live on your ain pock neuke," may come from this very thing. But, as it has been observed before, for usefulness generally, and for covering a bed, those with both ends open and fringed are the best. When sewn up at one end no tie nor brooch is required, as the left elbow is generally poked into it and acts as a purchase to wrap one's self tightly in it.

CARPETS, TAPESTRY, AND FLOOR-CLOTHS.

The display of carpets, although very unfavourably arranged for examination, is, without question, the finest that has ever before been gathered together under one roof; and if we were asked to point out the section of the Exhibition which most distinctly proves the advantage of comparing our own progress with that of other countries, we should select the specimens of carpet manufacture. The English specimens are all arranged, by the Catalogue, in Class 19, suspended round the south and north galleries; the foreign carpets in the limits assigned to their respective countries.

In number and variety of manufacture Great Britain takes the lead, as might be expected, considering that we use more carpets and export more carpets than all the rest of the world put together; but the honourable competition of other countries has enriched our Crystal Museum with specimens of extraordinary beauty in materials and workmanship, such as we can scarcely expect to see produced again as matters of commercial speculation. England, Scotland, and Ireland claim upwards of thirty manufacturer exhibitors; that is to say, from London, Kidderminster (whence about twenty date), Wilton, Leeds, Halifax, Durham, Kendal, and Stourport, in England; from Glasgow, Kilmarnock, Bannockburn, and Lasswade, in Scotland; and from Dublin: and, in addition to these manufacturers, there are several enterprising firms, who display goods prepared by their direct orders for sale in London, in various parts of England and Scotland, and even in Turkey and India, not to mention France.

Seven exhibitors are French, two Algerian, five Belgian, three Dutch, two Austrian, and eight of the Zollverein; two are Swiss, one Danish, one Portuguese, two Tunisian. The East India Company display several splendid specimens of Oriental workmanship; among others, a silk carpet of incalculable value from Cachmere. The United States has contributed only one carpet; and yet, as we shall presently explain, a citizen of the United States might have carried off the great medal for a new and valuable improvement in the manufacture of carpets, if he had chosen to have sent specimens of the manufacture, which he has recently commenced on an extensive scale.

The inconvenience of the arrangement by which lace, embroidery, and other still more incongruous objects, are mixed up together, and by which, to further increase the confusion in the Catalogue, each manufacturer has only one number indiscriminately affixed to Brussels, Scotch, and velvet carpets, renders a critical notice of fabrics which can only be seen at a distance, and not felt, extremely difficult.

In considering the subject, a distinction must be drawn between commercial carpets, and carpets made without regard to cost, as a matter of state luxury, or a means of improving the taste of the particular nation at whose expense the work is carried on. Almost every European state, with the exception of our own, has a Royal or National manufactory of some kind, in which, at national expense, very magnificent things are produced, to be presented as presents to Royal or noble personages, and to be sold to the few who can afford to pay fabulous prices for hand labour combined with high artistic excellence. The Gobelins was one of the earliest of these state manufactories. It was founded by the great Colbert, in the reign of Louis XIV., on the site of dye-works which had been carried on by brothers of that name from the time of Francis I. Colbert attached to the Gobelins a school for instruction in art and science, in connexion with manufactures, at the head of which he placed the celebrated painter Le Brun (whose battles of Alexander still form favourite stock pieces in Gobelins tapestry); and from that establishment and the one at Beauvais the tapestry and carpet manufactories of other great states have been imitated—in Austria, for instance, servilely and imperfectly copied.

When contemplating, with as much wonder as pleasure, some of the exquisite productions of the Gobelins manufactory, to be found on the north side of the French department, it will be an encouragement to our workmen to learn that these brilliant colours and harmonious designs are not the result of accident or intuition, but of 200 years of uninterrupted practice and instruction.

Next in order, after the costly hand-worked looms, where everything depends on the skill of the workman, come the contrivances for producing the effect of rich handiwork by machinery, at more moderate cost.

The first successful attempt of the kind was *Whytock's Patent Tapestry and Velvet Pile Carpets*, of which the patent, renewed a few years ago for a limited period, has just expired. By this process each worsted thread is coloured in all the colours intended for the design before commencing weaving. We had an opportunity of seeing the whole process, some months back, at Kidderminster, at the manufactory of Messrs. Pardoe and Hoomans, very active promoters of the Exhibition (when the Exhibition was not so popular as it afterwards became), and found the operation sufficiently curious to be worth describing.

In order to make a piece of carpet of say six thousand yards in length, as soon as the intended pattern has been reduced and transferred to a paper covered with squares, like that used by ladies in doing Berlin wool-work, a thread of yarn long enough to extend the whole length of the intended carpet is wound round an immense drum of wood arranged horizontally, so as to turn round when needed by a lever. This drum is surrounded at one edge with a brass rim, graduated with numbered lines, the figures of which answer to figures on the pattern-paper of the intended carpet. Underneath the drum is arranged an apparatus which can be drawn along a groove backwards and forwards like the shuttle of power-looms. A girl in charge of the drum holds in one hand a few inches of the pattern; a boy sits on the ground with boxes and brushes of all the needful colours. The girl counts off the space of one revolution. Under her orders, the boy puts on any colour—say red—which he causes to be drawn against the bottom of the drum until a line has been painted across the whole breadth; the girl turns the drum until she has covered a due space with red; then orders green, or blue, or white, as the case may be, and so until the worsted thread has received all the colours necessary for a longitudinal thread needed in 6000 yards. When enough of threads to form the pattern face of a carpet have been coloured, they are dried in the *hulls of oats*, and then submitted to a steam pressure, which fixes the colours. They are then handed over to girls, called, from the difficulty and skill needed in their employment, "the *ladies*," whose duty it is, after having learned by rote the pattern, to arrange the number of threads necessary to form the face of a breadth of three-quarters of a yard in the order of the pattern, as it must be when woven to a linen back. This is a most harassing and fatiguing operation: as fast as a bit of a few inches is completed, it is wound round a roller, and made fast until the whole length is completed. When all is arranged, the roll is transferred to the weaver, who weaves it, in the ordinary mode, to a stout hemp back. When the wire rods used to form the loops, as in the ordinary Brussels manufacture, are drawn out, a tapestry carpet, as it is called, is produced with a wavy outline: when the rods are *cut out*, the result is a velvet pile. The advantage of this process consists in the facility with which a variety of colours can be introduced—in flowers, for instance—and in an economy of worsted. This mode of manufacture has been rapidly extended of late years under licence from the patentees; and now that the patent has expired, we may anticipate further improvements.

The second machine-made fabric is the *Patent Axminster Carpet*, invented by Messrs. Templeton and Co., of Glasgow (315), which has great advantages where one design of moderate size is frequently repeated, as nearly the whole process can be effected by the patented machinery. The worsted is woven in stripes as *chenille*, the various colours intended to be used in the pattern being inserted in their proper places. The stripes are then separated, and by machinery the worsted ends are made to stand upright. These stripes in weaving are used as weft, and form the face of the carpet. By this process there is also an economy of woollen over the Turkey and Axminster mode, in which the worsted passes to the back as well as the front.

The third process of manufacture to which we shall draw attention is that of the *Patent Wool Mosaic Carpet* fabrics exhibited by Messrs. Crossley, in rugs, tapestry, and one carpet—the first of the kind ever made. These fabrics resemble externally Axminster work, but are produced in the following curious and ingenious manner, which was first invented in Prussia, but has since been patented and extended in application in this country:—The pattern is composed of threads arranged longitudinally, the ends forming the design. This having been completed, and the whole compacted together by strong pressure, a back of coarse linen covered with a glue composed of a solution of caoutchouc is applied to the ends, and, as soon as they adhere firmly, a slice of wool of the length required is sheared off. On this slice the pattern is of course displayed. The operation is repeated until the material is exhausted. The economy of this process is founded on the same principle as that by which an intended inlaid floor or piece of *parquetterie* is made a foot thick, and then sawed into veneer sufficient for fifty roomson precisely the same pattern. But the patent mosaic wool manufacture is obviously more suited for making rugs, table-covers, and other articles of limited size, than for carpets, as it is extremely difficult to conceal the marks of the joinings.

A fourth mode of producing carpets and tapestry is that popularly known as Bright's patent, from the name of the principle manufacturers, but which ought properly to be called Sievier's and Burch's patent. Sievier invented a mode of weaving carpets and tapestry in a power-loom, and Burch succeeded, after many failures, in printing the fabric by machine-worked blocks. In this manufacture, as in Brussels and in Whytock's patent, where the brass rods which formed the loop are allowed to remain, the result is a tapestry, a plain-looped face; where they are cut out, a velvet pile. The carpets of Sievier's and Burch's patent bear in design the same relation to hand-worked carpets that hand-worked wood-cuts bear to those worked off by machinery. The process affords room for great variety in patterns, and rapidity of execution; and the difference in cost enables parties who are content with a handsome general effect, to enjoy the designs and appearance of carpets or curtains, which, woven by hand, would cost at least a guinea a yard.

Brussels Carpets.—This manufacture was transplanted to Kidderminster from Tournai, in Flanders, about ninety years ago, and has become a staple trade of this country, where it has thriven on the tastes of the people. It is characteristic of the two people, that a Frenchman, even in the northern and colder parts of France, commences furnishing his sitting-room by purchasing a chimney-glass, an Englishman by buying a carpet. Hence the demand for cheap good carpets is immense in England, and throughout the United States, where the people have English tastes; while in France the only flourishing manufactures are of the velvet pile, or *moquette veloute*, and other richer kinds. For common use, Brussels carpet must always remain in favour, as cheap, durable, and handsome.

The French borrowed the Brussels manufacture from us, as we did from the Belgians: as yet they are inferior in texture and cheapness, but they show a superiority in design, which may easily be traced to the schools of manufacturing art, to which we have already alluded.

To describe the process of a manufacture so common as that of Brussels, would be unnecessary, but within the last few days we have examined specimens of the best Brussels carpet of the quality known as five-frame, woven by steam power, by Mr. Bigelow, of the United States. This invention will very soon revolutionise the trade. Mr. Bigelow has achieved what has often been attempted without success, and produces a first-rate article, which, if it had been sent to the Exhibition, would have obtained for him the great medal, only granted to the inventors or improvers of a manufacturing process. Since the arrival of specimens of Mr. Bigelow's goods (consigned to Messrs. Jackson and Graham) another important improvement has been made by Alfred Beach, a carpet-weaver, in the employ of Mr. Fawcett, of Kidderminster, and patented and exhibited by that gentleman.

It is worthy of note, that, so far, all the inventions we have described have found an ample increasing demand, without diminishing the ordinary production by the old methods.

With respect to Kidderminster, or more properly Scotch carpets, which are scarcely made at Kidderminster—and the still cheaper kind known as Venetian—we have only to refer to the specimens hung from the girders of the galleries, having no remarkable improvement to record.

Among the foreign carpets, made on the Turkish or Axminster principle, those exhibited in the Indian department on the east wall, outside the tent of shawls, and the small praying carpets in the tent, are particularly deserving of attention. There are great differences of opinion as to the manner in which carpet designs should be treated: some consider, that, for rooms of state, they cannot be too brilliantly gorgeous, or too profusely adorned with fruits and flowers; while some, judging by the specimens in the Exhibition, consider even architectural ornaments, pictures, and landscapes admissible; others contend that a carpet should be carefully subdued, so as not to excite that attention which tapestry hung on walls may fairly demand, and, therefore, they prefer subdued colours and flat forms, with but slight interspersion of flowers. We incline to the latter opinion, especially in rooms of moderate size, crowded with furnitures as English rooms usually are; for this reason, we think the Indian carpets good models for imitation. As curiosities, we note in the Tunisian bay two carpets, or rather long rugs, of singular but comfortable appearance, one of them adorned with rude figures of men and women. These could scarcely have been woven by Mahomedans, whose creed forbids the representation of living forms. They are not cheap—£22 for about 18 feet by four.

In the French department the great feature is the Gobelins carpet on floor. So costly a work can only be produced as a specimen of what unlimited expense can do. The harmony of the colours is more pleasing than the design.

The Austrian carpets are inferior copies, in workmanship and design, of the French. A carpet made by Maria Louise, with the aid of several Royal relations, is interesting as a specimen of amateur workmanship.

The Royal Dutch manufactory of Deventner, and the Belgian of Tournai, are both respectably represented by specimens which offer no novelty, but are handsome, well made, and really suited for use.

M. Salandrouze de Lamornaix, MM. Demi Doineau, Laroque, and Castel, display carpets only second in execution to the Gobelins; but we protest against one which is bordered with emblematic symbols of the Exhibition. The French have also sent specimens of cut velvet or Brussels carpets, from MM. Flaiser, of Nismes, and Requillaut, of Turcoing, which show the progress they have made in a manufacture which they transplanted from England within the last fifteen years, and the advantage they derive from the regular artistic instruction open to all classes in that country. Among the English exhibitors of carpets rivalling the Royal and national manufactories of the Continent, we may particularly allude to the contributions of Messrs. Jackson and Graham (399), who actually manufacture tapestry as well as carpets at their establishment, in Oxford-street; amongst others, a carpet in the Louis Quinze style, of Messrs. Watson and Bell (337), made at Wilton, by Blackmore, and commanded by her Majesty; and to the contribution of Messrs. Lapworth: but, as before observed, as all the carpets of each contributor bear but one number, it is impossible to designate each as particularly as we could wish.

Among the beautiful collection of rugs, one having the celebrated *Victoria regia* lily in the centre cannot be passed over.

Of the patent Axminster carpets, the one designed for her Majesty by Mr. Gruner, executed by the patentees, and exhibited by Messrs. Dowbiggen, leaves nothing to be desired either in beauty or texture. Carpets, rugs, and curtains made by the same process (315) are well worth attention.

The other velvet carpets, to which we would especially direct attention, are Harris, of Stourport (192), the manufacture being better than the design; Dove, of Leeds (155); and Messrs. Brenton, of Kidderminster (110), who are very large exhibitors in every section.

Messrs. Crossley's (142) patent mosaic Berlin work follows in natural order. In Whylock's patent, we would note the contributions of Messrs. Henderson and Widnell (201), especially one in which the fern leaves form a beautiful feature in the design; and another of orchidaceous plants. Messrs. Pardoe and Hoomans have a maroon and white ground, with rich flowers, apparently from a French design, of excellent texture and great brilliancy.

The carpets known as Bright's patent are arranged in the South Gallery (401). The curtains in the North Gallery are so good, that we need not envy the possessors of hand-worked carpets. On the plain Brussels and Kidderminster, so well displayed in the shops of our principal upholsterers and carpet dealers, it is unnecessary to say much. An excellent Scotch or Kidderminster carpet, made of Highland wool, of a cool grey, hangs in the South Gallery.

The conclusion to which we came without difficulty, and in which we have no doubt all who inspect this department will agree with us, is simply that our carpet manufacturing population need nothing but instruction to render them equal, if not superior in every respect, to any country in the world. The demand for carpets at home and abroad is constantly increasing; improvements in machinery are of daily occurrence, but no regular course of instructive carpet designing has ever been instituted, and in Kidderminster, the seat of the manufacture, no school of drawing exists, nor indeed any public school for affording superior education to the classes employed in one of our most flourishing manufactories. It stands to reason that we are much more likely to improve a manufacture by developing the innate talent of the youth employed in that manufacture than by relying on artists ignorant of the requirement and capabilities of the special process. And we trust, that serious exertions will be made to repay our artisans and manufacturing hands for the glory they have so largely contributed to bestow on Great Britain by distributing more widely the knowledge which would give them greater industrial power.

ROPES AND CORDAGE.

There is a dry, ungenial sound about the above heading, which, to some of our readers, may suggest anything but a lively interest. Nevertheless, we venture to maintain, that a review of the rope department of the Great Exhibition could by no means have been omitted with any show of propriety from our general history of the vast Industrial Palace and its contents.

What makes a rope an object of special interest to an Englishman, is its intimate association with the ship—that type of our national supremacy. The sight of a coil of hempen cable at once suggests to his imagination the taper masts and delicate tracery of rigging darkly defined against the sky as the stout vessel lies comfortably at anchor in the river; or the sinew-like straining of its cordage when labouring in the storm.

Let us, then, first trace the career of the rope from its birth in hemp, to its death in oakum. Before, however, we enter into practical details, we cannot resist quoting the words of a semi-civilised Indian chief, who, gazing on a coil of cable, exclaimed, "Behold the great serpent of the sea, whose folds encircle the earth!"

It is supposed that the ancients were unacquainted with the present use of hemp, since, though Pliny, in the 23d chapter of the 20th book of his "Natural History," describes the plant, he does not allude to the most important of its uses. The hemp-plant, *Cannabis* (the *Kanabis* of Dioscuros), has a tall straight stem, about six or eight feet high, hairy and quadrangular, with large serrated leaves. It will grow in almost any soil if properly manured, and as many as seventy crops of hemp have been grown in succession on the same land. The neglect of its cultivation here and in Ireland has been often deplored. The Indian hemp (*Cannabis indicus* of the "Materia Medica") possesses very strong narcotic stimulant properties. It is called *majeb* in India, and *hashish* in the Levant. Lamartine, in his "Vision of the Future;" and Alexandre Dumas, in his "Monte Christo," have introduced descriptions of its singularly intoxicating effects. In colour the extract of Indian hemp is a bright green. Its virtues are analogous to those of opium and henbane We should not have alluded to these facts, were it not to support our own conviction that the common hemp contains similar properties, though in a less powerful degree. And of this we are convinced by a curious incident which came to our knowledge, of some sailors, who, having on a voyage exhausted their tobacco, took to chewing small pieces of rope, which they found a very excellent substitute for the genuine pigtail. Of course, but for our knowledge of the properties of Indian hemp, we should have attributed this entirely to the effect of imagination, that easy refuge from an investigation of natural causes.

It is considered that the best hemp is grown in the southern provinces of the Russian empire. Riga hemp is held most in esteem. The other principal variety of Russian growth is called St. Petersburgh hemp. In both cases, the name is derived from the port at which the article is shipped. East Indian and Manilla hemp are the two other chief varieties. They are whiter in colour than the Russian. Of the two, Manilla is preferred. The latter is also now extensively used in matting, especially in combination with cocoa-nut fibre, as may be seen by a reference to the article in the Illustrated London News on those manufactures.

The way in which a rope is made is this:—First, the hemp is hatchelled or combed, to clear it of the short ends, which would otherwise run in with the long. Train oil is used in this process, for the purpose of producing evenness and causing cohesion of the fibres. Too much oil, however, must not be used, as it would prevent the hemp from taking the tar afterwards to be applied to it.

The second process consists in spinning the yarn, that is, forming the hemp into separate and continuous threads. After being warped, or stretched, and slightly twisted, the yarn is then tarred with boiling tar. Several yarns are then twisted together, to form what is called a strand, and the twisting of the strand together forms the rope. Of course, this process of twisting and re-twisting may be pursued to almost any extent; and, in proportion to the amount of labour bestowed upon a rope in its separate combinations, will be its strength when finished. To illustrate this principle, which must guide us in our criticism of the cordage we shall presently have to examine, it should be called to mind that the more the points of resistance be multiplied in any mechanical construction, the less will be the strain or pressure on one point in particular. Now, the more elaborately a rope be twisted and combined, the greater will be the number of points of resistance—the greater, consequently, the strength of the rope. Indeed, there would be scarcely any comparison possible between the strength of a good cable-laid rope and of a mere union without twisting of the yarns which form it.

The French ropes in the Exposition are remarkable for laborious finish. One specimen, especially, of white or Manilla hemp, nearly free from tar, especially excited the admiration of our nautical friends. The beauty of the French ropes exhibited consists in the care with which the yarn and strands are prepared. Either more work is bestowed upon them, or the French machinery is more perfect. Perhaps, however, this finish may be to a certain degree superficial, and the difference in strength, which is the great point, between these and similar English specimens be very immaterial.

The English cordage is interspersed amongst the hardware and miscellaneous articles on the south-west side of the Central Avenue. Robertson, of Limehouse-hole, exhibits specimens of large rope for shrouds, &c., and smaller cordage for topmast rigging of very excellent manufacture. Some 11-inch rope applied as stop-rope to a cannon (to counteract the rebound after a discharge) is particularly strong and well made. Haggie Brothers, besides some very fine specimens of ordinary cable-laid rope, exhibit flat ropes for the winches by which baskets are raised from coal-pits, of great strength and finish. Nor, though not strictly pertaining to our subject, should we omit to mention, incidentally, some round and flat *wire* rope, by R. S. Newall and Co., of Gateshead on Tyne, intended for the standing rigging of vessels and the support of suspension bridges, to which they appear eminently adapted. For on the same principle that a Damascus blade, hammered out of an infinity of wires, is stronger and more trenchant than an ordinary sword, these wire ropes must be superior in sustaining power to the chains in ordinary use made of solid masses of metal.

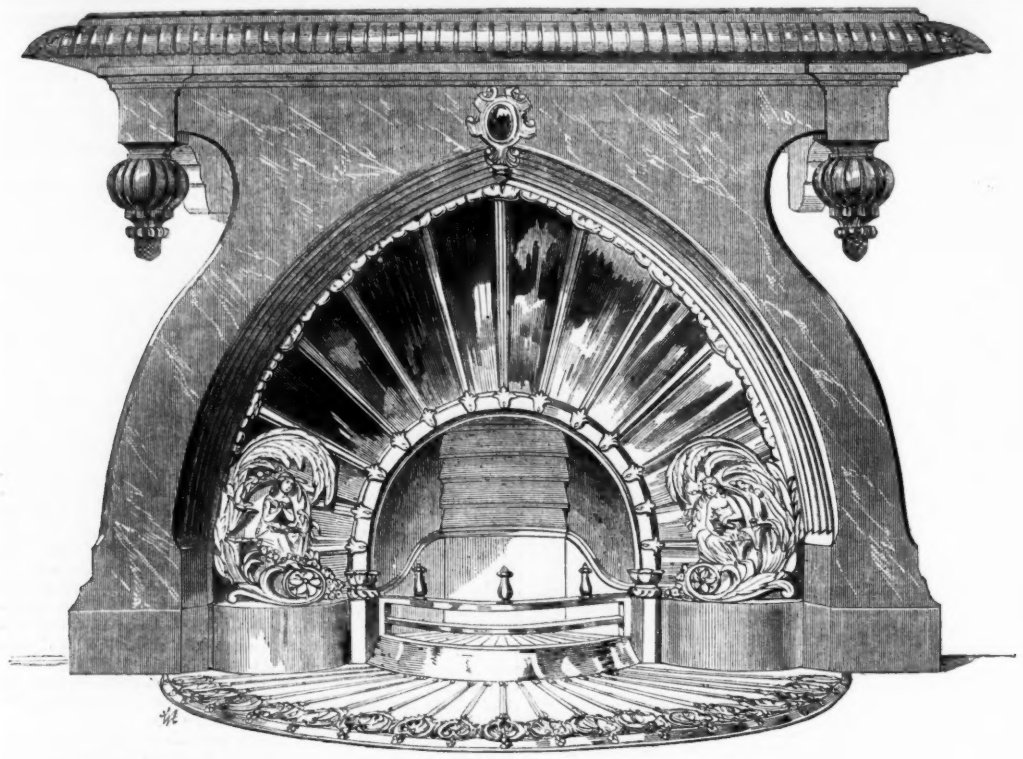
The patent rope, manufactured from Manilla hemp, by Spyvee and Coopers, of Hull, is well worthy of attention, as are also the flat ropes made under the improved patent of S. H. Hawke, of Truro. We cannot say much in commendation of the Gourock Rope-work Company, of Greenock; though, perhaps, want of external finish is the only fault of their manufactures. Sir Joseph Huddart and Co., of Limehouse, exhibit a very ingenious machine for twisting the yarn and straud. We presume Sir Joseph is either the original patentee or the son of the Joseph Huddart, of Islington, who some fifty years ago took out one of the earliest patents for a rope-making machine. The specimens of this firm are amongst the finest in the Exhibition. Joseph Crawhall's (of Newcastle) improved patent rope-making machine, in the Machinery in Motion department, is, however, the most perfect thing of the kind yet invented. It twists the yarn, the strand, and the rope by one and the same process, several smaller wheels turning round the principal spindle. It is beautifully simple in its construction.

In the Russian department we found only two exhibitors of ropes, Michael Milnikoff Glouskoff, of the government of Tuertown Ryeff, and Cazalet, of St. Petersburgh, whose specimens, though not equal to the French or English ropes, were by no means of striking inferiority. We should have expected, however, something more from the land of hemp *par excellence*. But it is rarely that the same country excells in the manufacture of the raw material which it produces.

The ropes of Felten and Guillaume, of Cologne, are much better; indeed, to all outward appearance, quite equal to those of our own manufacture. Blenkenburg, of Lippstadt, chiefly excells in small cord and string; but H. J. Hoerkens, of Lubeck, sustains the reputation of that Hanseatic seat of commerce by specimens of unexceptionable texture.

In conclusion, we are happy to be able to felicitate the great shipping interest on so many improvements in this most important branch of industry, and to express our satisfaction that we have been totally unsuccessful in discovering a single rope of sand in the whole collection exhibited at the great Pythian games of industry in Hyde Park.

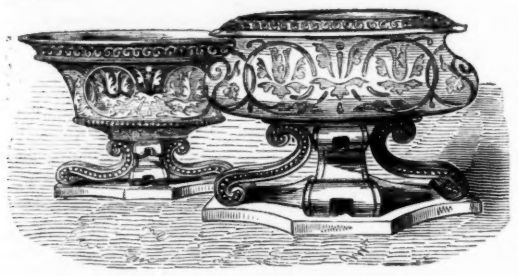
Not improbably, before awarding their medals, the committee will subject the ropes of all nations to a "a long pull, a strong pull, and a pull all together," which will decide their relative merits by the test of indisputable experience.



STOVE.—BY STUART AND SMITH, OF SHEFFIELD.

HUNTER AND TIGRESS. BY JERICHAU, OF COPENHAGEN.

This plaster group evinces wonderful spirit, and is extremely correct n execution. The hunter has snatched away one of the tigress's cubs, and she rushes wildly upon him to recover it, or revenge its loss. The attitude of the hunter, who aims a blow in self-defence, is full of energy and truth.



SALT-CELLARS.—BY LIAS AND SON.

These salt-cellars are of a very pretty pattern, rather old-fashioned perhaps, but beautifully executed and tastefully engraved.

THE ELDON GROUP. BY MARSHALL.

The portrait group of the late Lords Eldon and Stowell is remarkable for the accuracy of the likenesses, and the calm dignity of the attitudes. It, however, wants poetic character, and the effect is heavy.

GRATES. BY STUART AND SMITH.

Our Illustration is taken from a grate on Sylvester's patent, with rolling hearths executed in bright steel and or moulu, manufactured and exhibited by Messrs. Stuart and Smith, of Sheffield. It is of fan-shaped pattern, and is set in a massive black and gold veined English marble. Messrs. Stuart and Smith are distinguished as manufacturers for the high degree of scientific skill and artistic taste they have brought to bear upon the Englishman's fireside. One of the partners (Mr. Jobson Smith) was instrumental in founding, and has always taken a very active part in supporting, the School of Design in Sheffield, an institution which has already produced a sensible effect on the taste of the Sheffield manufacturers. The collection of grates, stoves, and fenders exhibited by this firm comprises works rich enough for a palace and cheap enough for a cottage. Indeed, one stove in the Alhambra style has, we understand, been purchased by her Majesty. The castings in or moulu of the one before us are of remarkable fineness and sharpness, and the workmanship throughout is first-rate. Sylvester's patent is one of the greatest modern improvements in the economy of household fires, by which the fuel is restored to its original position on a hearth of metal with open bars, which, extending fan-like, forms a fender, and, by radiation and reflection, distributes the heat through the apartment. This arrangement is directly the contrary of that by which, the grate being perched high up, one half of the heat flew up the chimney with the smoke, while the other half was employed in consuming a volume of cold air from the floor part of the apartment. By a further improvement, the hearth fender rolls on wheels; the ashes, falling between a few bars, disappear, and may be removed once a day, thus avoiding the use of a hearth-brush, which always occasions more or less of a nuisance.

FOUNTAIN. BY JABEZ JAMES.

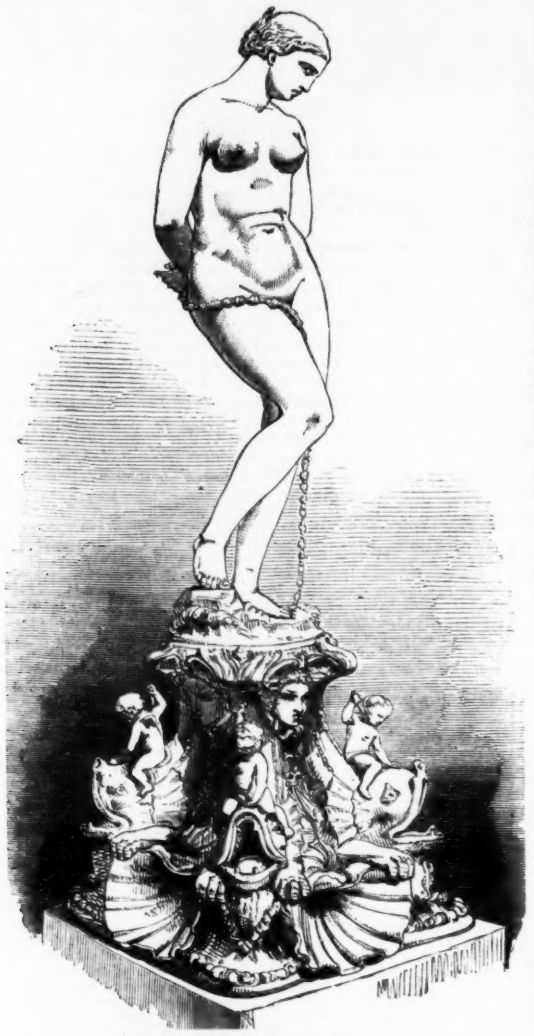
This little fountain, studded with dolphins and sea-monsters, and crowned with a figure of old Neptune himself, is cast in bronze, and is supplied with water by a small engine. It is well adapted for the decoration of a summer-house or a cottage verandah.

TAPESTRY PATTERN.—BY W. CROSSLEY, HALIFAX.

Messrs. Crossley, of Halifax, exhibit some very beautiful tapestry-work one of which we engrave. The design and colouring are alike lively and agreeable; and the texture of the surface is of the richest quality, bidding fair for successful rivalry with the productions of Gobelins and Aubusson.

THE ELDON GROUP.—BY MARSHALL.

THE HUNTER AND TIGRESS.—BY JERICHAU, OF DENMARK.



"ANDROMEDA."—BY BELL.

EVE."—BY DEBAY.

AXMINSTER CARPET, DESIGNED FOR WINDSOR CASTLE. EXHIBITED BY WATSON AND BELL.

The carpet represented on page 468 attracts general attention, from its immense size (the extreme length being 52 feet, the width 38 feet), and from the brilliant, yet not gaudy colouring. The design was made by L. Gruner, Esq., expressly to the order of Prince Albert, for the drawingroom of Windsor Castle. The fabric (the best description made) is entirely worked by hand, every stitch (64 in a square inch) being tied through the back, so as to secure greater durability than in any other description of carpets. The work, which required the greatest attention to the working pattern and the selection of the various shades, was executed at Wilton, by Blackmore Brothers, for Watson and Bell, of Bond-street, on whom the responsibility of success devolved. Watson, Bell, and Co. exhibit three specimens of the same quality with that which they have made for Windsor Castle. It appears that these carpets have been produced to show that there is no necessity for resorting to France or Belgium for these first-class carpets, as those exhibited can be sold for less than two-thirds of the price asked by foreign manufacturers for the same quality. Indeed, we might supply France and Belgium largely with these articles, but for the duty on importation, which may be pronounced as prohibitory, being at the rate of from 250 to 500 francs per 100 kilogrammes on entering France, in other words, upwards of 60 per cent. on the average.

INLAID TABLE-TOPS. BY WOODRUFFE.

Woodruffe works in Derbyshire marbles are very beautiful. The tables which we engrave are very handsomely inlaid, after designs by L. Gruner, and made to the order of Prince Albert. The Royal initials will be observed in the border of one of them.

EVE. BY DEBAY.

We have already, in our concluding article on sculpture, favourably noticed the very masterly group of Eve, with the infant Cain and Abel in her lap, exhibited in the Gobelins room, by M. Debay. The idea is poetical and picturesque, and is ably carried out. The First Mother appears to be lost in a revery as to the future destinies of her offspring, the principal incidents of which are foreshadowed to the spectator in the bas-relief sculpturings on the pedestal. All things considered, we should be inclined to pronounce this to be one of the finest works of sculpture in the Exhibition. Some people have given it the fanciful title of the "First Cradle," or "Nature's Cradle;" but as that does not do justice to the poetic mystery involved in the conception, we prefer the simpler title by which we have denoted it.

"ANDROMEDA." BY J. BELL.

This is certainly one of the most graceful and pleasing of Mr. Bell's numerous productions, and it has been most satisfactorily cast in bronze by the Coalbrook Dale Company. Since its location in the Crystal Palace, it has been purchased by her Majesty.

PARIAN FIGURES, &c. BY GOODE AND CO.

Messrs. Goode have been at great pains and expense in the production of their China lace and Parian lace figures, which exhibit great beauty, colour, surface, and finish, even in the most intricate details. The three figures in the group given represent Repentance, Faith, Religion, &c.; the grapes and flowers on the vases are done in very bold projection, but, being so *vraisemblable* in form, call out for a little colour to mark.

ROYAL FAN. BY DUVELLEROY

Duvelleroy has made a *spécialité* of fans, in the production of which he is perhaps without a rival. His fame extends not only over Europe, but has made its way to remote quarters of the globe. Even the Chinese, so famous for their fans, so unwilling to learn, and jealous of change, have copied his designs. It would be rather difficult to describe the truly gorgeous fan which this celebrated artist has made for the Emperor of Morocco. It is a fan of wonderful magnificence, and, to say nothing of the painting and general enrichment, the diamonds and the jewels alone have cost more than £1000. He exhibits also a set of fans illustrating the stories of the "Arabian Nights," which have been made to order for the Sultan of Turkey. But our present business is with the *éventail royal*, the subject of our engraving on page 472. In this little work of art her Majesty and Prince Albert are represented sitting in the drawingroom at Buckingham Palace, surrounded by their Royal children, after a picture by Winterhalter. The handle is of mother-of-pearl, and the medallions in carved gold. In the centre of the handle are the Royal arms of England, carved in *alto relievo*, in the thickness of the mother-of-pearl: the lion and unicorn support the 'scutcheon; and the two mottoes, "Honi soit qui mal y pense," and "Dieu et mon droit," appear in letters of mother-of-pearl on a ground of gold. Each of the radiating branches is terminated by a Royal crown, and the two principal branches bear, chiselled in the mother-of-pearl and richly gilded, portraits of the Queen and her Royal Consort. We understand that M. Duvelleroy employs upwards of 2000 men. This is easily accounted for, when we state that he makes fans as low as a halfpenny each, and that even these have, every one of them, to pass through the hands of fifteen workmen.

"VICTORY."—BY NELSON.

VICTORY. BY G. NELSON.

This is a piece of sculpture intended to commemorate the services of the officers and men of the 50th Regiment who fell on the banks of the Sutlej.

INLAID TABLE-TOPS, DESIGNED BY GRUNER.—BY WOODRUFFE, OF BAKEWELL, DERBYSHIRE.

FRINGE, &c.

It appears that the custom of appending fringe as a decoration to costume and furniture, of even the rudest dwellings, is to be traced to the very earliest ages of man. The graphic records of past times, either in sculpture or otherwise, furnish ample evidence of its adoption in those periods of which we have the unquestionable vouchers. All nations have likewise been accustomed to its use, however barbarous or uncivilised the state of the people; and the dresses of the savages and aborigines of Africa and elsewhere testify to the existing fondness for such a means of decoration and display. Indeed, amidst the apparently confused jumble of paraphernalia worn by the Indians are mostly to be found portions of native manufactured fringe, displaying great art and facility in design, and elaborate neatness and order in their execution. Few of these specimens of embroidery are to be met with of late unadorned with beads, these latter introductions of European traffic taking the place of small pebbles, shells, &c. In this respect there exists but little, if any difference, between these productions of so called savage life, and the results of our best manufactures, with all the accessory aid and attributes of science and art. As a somewhat partial corroboration of this view, we would, *en passant*, instance an apron of crochet work, remarkable for the beauty of the pattern and execution, in avenue 1, area 30 (Ionian Islands), and showing that what has but recently appeared in England as an accomplishment, has been for ages the common needlework of the Ionian peasant girls. Doubtless many of the first notions of fringe were obtained by the leaving uncut the ends of the material used in making nets, the fraying of fabrics, and the consequent necessity of stopping its extension by knots, the addition of small weights to keep down drapery at the entrance to tents, &c.

There are some splendid specimens of fringe of early English and Flemish manufacture to be found in various noble mansions throughout England, and which have been eagerly sought after and as eagerly copied by the British manufacturer who in this branch of trade closely competes with, if he does not excel, every other. Indeed, the specimens of our own fringe in the Exhibition fairly outvie all that has been contributed from any foreign source, if we except colour, in the essential requisites of taste, material, and finish. Ere we commence our detailed description, we may allude to a room at Dotesio's hotel, at Slough, entirely fitted up in needlework and embroidery of the time of Louis Quatorze, and in which is to be found some of the most magnificent fringe of that gorgeous period. The beautiful little gossamer-like tassels which hang in clusters to the beds, the chairs, and the ottomans, are of the most pure and exquisite design, and, what is still more remarkable, there are, as we believe, no two alike. We were forcibly reminded of these elegant appendages while examining—

No. 56, in class 13, contributed by Elizabeth Onion, of Birmingham. Here are several *fac similes* of the fairy-like tassels we alluded to, but they are not used as independent objects, but made to dangle attendance around some burly bell-handle, or attend in clusters upon their more weighty, but less elegant, connexions. This display of Mrs. Onion's is a very handsome one, with which we have neither inclination nor excuse for finding fault: very elaborate work has been enlisted; but such elaboration, as in the tassels made mention of, has been qualified by breadth of parts and a sufficiency of repose insured to sustain a desirable harmony of composition. Most of the tassels embrace in portions the forms of regal crowns, but the outlines are sufficiently disguised to remove any obvious mechanical effect, while enough is evolved to induce the reminiscence of a preconceived notion of grandeur.

No. 69, Ann Arthur, Mortimer-street, although next to the last-mentioned, is very far removed from good taste. The objects are poor and unmeaning, the imitations of flowers being execrable. Some of the tassels, and those of the more simple kinds, are good, but whenever an attempt to improve has been made, failure appears to have followed.

No. 68. Foot and Son, Spital-square. Fringe formed by a combination of velvet and brocade. This appears to be a very happy mixture of materials, but we can readily conceive, with such appliances, much more could be done than has been here effected. In some of the specimens the appearance is dingy and unprepossessing. The silk fringe in the centre of the compartment of blue and white, and that of salmon colour, is very neat and pretty.

No. 71. Danby and Co., No. 43, Bond-street, have several imitations of rose flowers and leaves, which are more curious than enticing. They have an old-maidenish stamp. The cords and tassels are of considerable elegance, and singular lightness of appearance.

No. 72. C. W. Bradbee and Son, Newgate-street, have a few of the most charming silk tassels it is possible to conceive. They are very simple in their form and construction, and are clearly copied from Oriental originals. The fringes for sacred edifices are more quaint than tasteful.

Evans and Co., Watling-street, have cornice, silk, bullion, and ornamental fringe, of an exceedingly useful and solid, but by no means *recherché*, character. The bell-pulls and curtain-holders are remarkable for an excellent arrangement of parts: comparatively ancient examples have been carefully studied and judiciously made use of, a correct balancing of the various figures being observable. The silk cord for the ornamentation of curtains is likewise deserving of mention, and the whole of this selection has clearly been placed under the supervision of an artistically educated eye. The large curtain holder in the centre of the case has a well-balanced tassel, but the cross-piece above it is somewhat out of harmony.

No. 394. Bennoch, Twentyman, and Rigg, 77, Wood-street, have two cases containing a greater variety of produce than any of those adjoining, from which we gather that the commercial operations of this firm embrace a wider area than those whose goods of a similar class are exhibited in the same gallery. While under one number we find specimens of sewing silk and twist, in another the same articles with shoe ribbons added, and in others excellent specimens of upholstery fringes, gimps, or dress trimmings, here we find a concentration of them all. There are a few skeins of purse silk, or netting twist, representing a production of three or four hundred pounds weight per week; a few balls of twist used for button-holes, of which a like quantity is made, and a few skeins of sewing silk of a peculiar dye called *raven*, or it may be jet, standing for a business of 2000 lb. weight per month, or equal to 26,000 lb. weight per annum. Here, too, are boot-laces, from 8d. to 9d. per gross of 144 laces, tagged with tin or brass at each end: one would imagine, that, to cut the cords, tag them and afterwards, tie them in bundles, would be barely paid by the money. The little boys of seven to twelve years of age employed in this trade (and there are hundreds) will, in the rooms where such goods are made, trot from twenty to thirty miles per day, or equal to half the circumference of the globe every year. Here is a box with a few rings of wire enveloped in cotton, or covered with silk, used to stiffen or keep in shape the bonnets of the ladies; and when we learn that at least 30 tons of iron, with a proportionate quantity of cotton and silk, are consumed in the fabrication of this apparently simple article, how it seems to enlarge our views in relation to commerce! Let no man pronounce this insignificant, or that trifling. There is no such thing as insignificance in the arrangements of nature, and as little in the harmonies of commerce. Things which at first sight appear unworthy a moment's thought, on being explained, expand before our vision, and we picture to ourselves the tens of thousands of pulsing hearts and humble homes rendered happy and comfortable from the enterprise of the manufacturer who points a pin, as well as from the titanic power that forges the anchor. Here, also, are reels of twist, looking like silk, but in reality two-thirds cotton—the cotton being plated with a thin coating of silk. This material is used for embroidering lace at Nottingham, or woven into fringes for mantles at Coventry. We believe it was mainly through the encouragement of the head of this firm, that a principle was discovered by which such articles could be produced by machinery, instead of by hand, as formerly. Many months of study had been devoted to the subject, and it was about to be given up in despair, when Mr. W. Unsworth, of Derby, hit upon the process. The effect was instantly felt; goods that were usually sold at a shilling were reduced to threepence. Articles confined to the comparatively wealthy, were brought within the reach of the comparatively poor. Germany, Holland, and Belgium were supplied by our manufacturers with goods they had previously produced for us; while America and the cities on the shores of the Mediterranean became important customers. Several thousands of persons were occupied in Warwickshire and Derbyshire in fabricating guimps, fringes, and other fancy articles. The trade was established, and a new branch of manufacture added to the industry of England. such details are so interesting, that we have been led to dwell longer upon them than was the intention of our first design: we may add, however, that along with the articles already enumerated are excellent specimens of coloured ribbons from Coventry; blond ribbons, braids, cords, and fancy silks from Derby; handkerchiefs and ferretts from Macclesfield; sewing silks from Leek; various galloons, &c., from Manchester; and numerous combinations of lace with ribbon guimp, &c. from Nottingham, all worthy of inspection. As these notices are for the encouragement of those whose labour and capital are embarked in commerce, as well as for the information of those who wonderingly look on, it is cheering to learn that such firms as those whose productions are before us give direct employment to two or three thousand persons, and incidentally provide for three or four times that number. Who can calculate the amount of good they do? To all such we would say, go on and prosper, reaping the reward your enterprise so justly merits.

Robert Burgh has a very large display of fringe, amongst which there is much to admire, but as much to show us that the results have been as equally produced by ill-directed fancy as good judgment. For instance, the tassels are mostly more grotesque in embellishment than elegant in shape; and where an approach to something deserving of admiration is just about to be arrived at, it is stopped short by the intrusion of some false quantity either in colour or form.

No. 76. Barrett and Corney. A rich collection of gold and silver cord and fringe: some of the cord made with either gold or silver is interlaced with coloured silk, and is peculiarly chaste in style. In this case is a ruby jewel hole through which the gold wire is drawn, and which is supposed to be the finest hole ever pierced. "The wire drawn by its means runs 2820 yards per ounce troy, and the gold actually measures at the ratio of 338,400 yards, or 192½ miles per ounce troy!" Here is evidently some error, but we give it as we find it.

No. 57. Burke, 6 Bull's Head-court, Newgate-street, has several examples of embossed trimmings of great beauty and design. This embossing is done very readily on any kind of silk, linen, paper, &c., and although in regard to dresses it will, of course, wash or iron out, we can readily conceive that at the cost of a little time and expense the best examples of decoration might be renewed with much success. The cut-through patterns have not this objection, and are equally remarkable for their quiet, lady-like appearance. We think this an application which is within the reach of most persons, and capable, in gifted hands, of being carried into a very wide field of decorative usefulness.

No. 80. W. and H. Browett, Coventry. The trimmings of these gentlemen enlist attention, from their great beauty and the variety of the assortment.

The fringe on Messrs. Fauvell and Phillips' grand state bed, of which we recently gave a detailed description, is bold, artistic, and massive, and altogether in excellent keeping with the *tout ensemble*. A second inspection of this gorgeous affair serves to impress us still higher with the notion of the elevated taste which must have presided over its production.

No. 206. T. Wheeler and Co., of Abbey Mills, Leicester, has an endless variety of fringe, all more or less creditable to the capabilities of Leicester.

In the Austrian department we have C. F. Muchlenderlen exhibiting gimps, fringes, &c., all of a very common, not to say inferior, description; and Oehmig and Schmidt, fringe in worsted of a heavy character and tawdry effect.

Posamenter, of Breslau, at the entrance to the South Gallery, exhibits pieces of carriage and furniture fringe of a superior description; next to which is Heinrich Zeisig, of Breslau, whose carriage fringe is likewise commendable, but whose bell-handles are conceived in the worst notions of that requirement.

In the French department we have nothing that approaches to the British groups, if we except some very broad and elaborately wrought fringe made for Messrs. Jay, of Regent-street, in which a cut jet bead (not the common bugle) is introduced with admirable effect. This fringe, in some instances, is ten or twelve inches broad, and in the closer portions arabesque and other patterns are introduced with great correctness of outline and exquisite finish. It is of a most expensive description, being intended for mantles for our English aristocracy and more wealthy classes. For brilliancy and richness of colour there is no one in this department can vie with Guillemot Brothers, who have contrived, by the simple aid in each specimen of two or three shades, to produce a most striking and gorgeous effect of chromatic harmony; and they have been equally fortunate in this essential requisite in their carriage and furniture fringe, in the latter of which they have made a bold and successful attempt to imitate precious stones set in gold.

No. 1414. Pugin, Paris, contribute carriage and furniture fringes, which, while they do not approach the last mentioned for the exalted gift of colour, are good from a certain care and attention to arrangement and form. Jullien, of Tours; J. Mormieux, of Paris; Repiquet, of Lyons; and F. M. Roux, of St. Chamoud, show severally specimens of fringes which may all be placed under the same category of tolerably well manufactured.

No. 50. Behr and Schubert, of Frankenberg, Saxony, have a flag of double satin with fringe.

No. 153, Hsenel Brothers, 155, Uhligo (Annaberg), 158, Bach and Son, and 160, Hillman, all of Saxony, exhibit various fringes, tassels for curtains, sewing and ball fringes, half silk bullion, which are principally exhibited for cheapness and execution, but which, while they possess much merit, are almost destitute of novelty.

The only other examples of fringe which we could find are in the Portugal and Madeira department, 1155 to 1157, bell-ropes and tassels, which did not repay us for the search.

HERMANN'S DRUG-GRINDING MACHINE.

Although placed among the English machinery, M. Hermann's inventions are, according to the Catalogue, to be found in a very different part of the Building (being numbered 873, at page 236, among the French contributions). It is no wonder, therefore, that, without any note of explanation, visitors should have such great difficulty in finding out any particular article they may be in search of. The pestle and mortar is a necessary appendage to the establishment of every chemist, the useful application of machinery to which is the invention of M. Hermann, displayed in different forms at the World's Industrial display. As will be seen by the Engraving, the pestle is made to rotate uniformly within the mortar, by means of a bevil and spur weel motion, effected by the application of the hand to a fly-wheel at the back of the machine. Thus the grinding is performed more perfectly than by the ordinary hand-pounding process. There are two modifications of this invention. In the one which is illustrated in the present Number, the mortar is made of china, while in the other the mortar is of granite, and the framework of the machine is somewhat different. Either of these machines, however, would be far more useful in the laboratory than the old pestle and mortar.

The same exhibitor also shows chocolate-grinders and other machines on the same principle; but, instead of being worked by hand, they are driven by bands in connexion with a steam-engine, in the present instance on the oscillating principle, constructed by Messrs. R. and W. Hawthorn, of Newcastle, and mentioned more particularly in our notice of "Machinery in Motion."

BUTTONS.

The principal display of Buttons, at the Great Exhibition, on the south side of the English department, under the head of "Hardware."

The oldest of the Birmingham buttons seem to have been a plain flat button, of the waistcoat size, which, a hundred years ago, was sold at 4s. 6d, a gross, and which is still manufactured at 1s. 6d. a gross. Then came a very large button, of the size of half a crown, with ornamental devices on it; but this was dear. It was the gilt and plated button, introduced between 1797 and 1800, which made the great "hit" in the trade. This button became immediately fashionable, and continued so for a quarter of a century. Everybody must remember the days when the blue coat, with its seemly array of glittering brass buttons, was the not unbecoming garb of a gentleman. At the end of twenty-five years, it was pushed from its popularity by the covered, or Florentine button; but a dashing attempt was made to revive its glories by means of a deputation which the trade despatched to London. We do not learn that they committed a similar inadventure to that of the poor wig-makers, who went up to petition the throne, some years before, against the practice of wearing one's own hair, but, going in their own natural hair, so scandalised the mob by their inconsistency, that they had it all cut off for them by the rabble. Armed with sets of beautiful bright buttons, the discomfited makers forced their way to the foot of the Throne, and, tendering their article, besought Royalty to pity their misfortunes. They represented that the old button was very handsome, and that thousands of them were reduced to poverty by the introduction of the new one; and they therefore entreated the King (George IV.) to encourage the metal button trade by wearing that article. The same appeal was made to other influential persons; and not only the King, but the Duke of Clarence, several of the Ministers, many members of the nobility, the Lord Mayor, and other notables, accepted the proffered buttons, and promised to wear them. The experiment was successful, a reaction took place, and the dark button, as we well remember, went aside, for a few seasons. Again we all came out glittering—

To midnight dances and the public show.

But the triumph was not long, and that it was not longer, was the fault of the Birmingham people themselves. Some manufacturer invented or introduced a cheap method of gilding the buttons. The trade called it French gilding, the workmen named it "slap dash" It made the buttons look remarkably brilliant for a very little while, but they tarnished almost immediately, even before the retailers could sell them; and if placed in all their brightness on a new coat, they looked shabby in a fortnight. This discovery—perhaps it is refining too much to suppose that it was introduced by a friend to the Florentine button—fatally and finally damaged the metallic cause, by casting discredit upon the whole manufacture: people left off ordering brass buttons, and by 1840 the trade was again ruined. A second attempt at obtaining illustrious intervention was made: Prince Albert was assailed by a deputation, and the sympathies of the press were invoked by the metal-buttonist. But the charm would not work twice, and you never see a gilt button now except upon the terribly high-collared coat of some terribly devoted adherent to old fashions, who may be observed nestling in the corner of the stage box on first nights, and who, if he speaks to you, is sure to growl out the unreasonable intimation, that "You ought to have seen old Joey Munden, sir, in a character like this. Munden, sir, *was* an actor."

Except the buttons required for the military and naval services, and for "Jeames," the metal article is out of date, and covered buttons have it all their own way. The Florentine or covered button was first introduced into Birmingham in 1820, and it derives its name from the Florentine cloth with which it is covered. It is composed of five pieces: first, the cover of Florentine, or silk; second, a disc of metal which gives the shape to the button; third, a somewhat smaller disc of brown pasteboard or wadding; fourth, a disc of coarse black linen or calico; and fifth, a disc of metal from which an inner circle has been punched out, so that the cloth or calico above may slightly protrude, and form the shank of the button. Young girls cut the various discs with a punching machine, and the last operation is to place the five pieces in regular order in a small machine constructed to hold them—an arrangement carried out by a number of little children under a woman's superintendence; and then this machine, which has been compared to a dice-box, is brought under a press, which with a touch fastens the whole bottom together with a neatness and a completeness to which any one who will examine his coat-button can be witness.

Horn buttons are made from the hoofs of horned cattle: those of horses are not available for the purpose. The hoofs are boiled until soft, and cut into halves; then "blanks" are punched out. The blanks are placed in vats containing a strong dye, red, green, or black, and the shank is next fixed in. The button is then placed in a mould, where the under surface is stamped with the maker's name. A dozen moulds are put into an iron box, and heated over an oven until the horn is as soft as wax, and then an upper mould with the pattern for the top of the button is pressed down, fitting close to the lower mould. The moulds having been placed in the press, and submitted to its action, the buttons are complete, except that the rough edges require paring. Brushes, worked by steam, then run over and polish the buttons, and they are ready for the sorter. There are numerous beautiful specimens of these buttons in the cases to which we shall presently refer.

There are still many other kinds of buttons to be noted. The pearl button gives employment to two thousand people in Birmingham alone.

We must not forget glass buttons, with which it was lately the pleasure of admiring mothers to sprinkle their little boys very profusely, and which are also much in demand for exportation to the African chiefs, who have the true barbarian love of glitter. There are two sorts, the round and the knob-shaped. The former are made of sheet-glass, of various colours, and coated with lead, which is cut by hand into small squares, the corners of which are rounded with scissors, and the edges are ground on a wheel. The shank is then fastened; it is joined to a round piece of zinc, the size of the button, and soldered to it. The knob buttons are made in a mould: a long rod of glass being softened in a furnace and clasped in the mould, in which the shank has previously been fitted. The black glass buttons, for coat-links, are made at a lathe. Agate, carnelian, and stone buttons are imported from Bohemia, and shanked and finished in Birmingham.

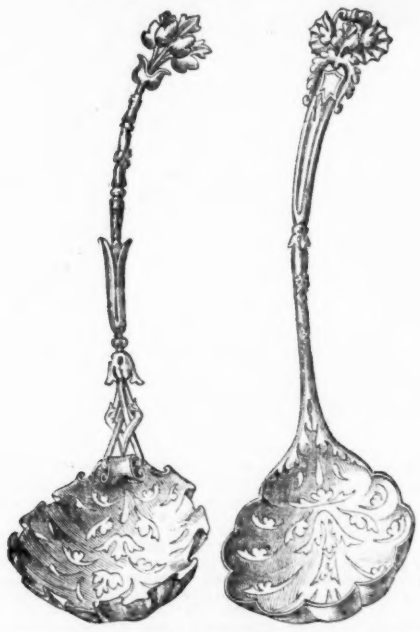
There are several other kinds of buttons, specimens of which are in the Exhibition, as the iron and brass buttons with four holes used for trowsers, steel buttons for ladies' dresses, wooden buttons and bone buttons for under clothing. The former are punched by one press, rendered concave by another, and pierced by a third, and then a hand-piercer is introduced from the opposite side to that which receives the blow, in order to smooth the edges of the holes. Having been cleaned, the buttons receive a white coating, by means of a chemical process. The steel buttons are made by the steel toy manufacturers. The wood buttons are made by wood turners; and the bone buttons are chiefly made by the horn button-makers.

Having thus enumerated the principal forms of button, we will pass to the Exhibition itself, in which these articles make a very good show, and we will indicate the most striking specimens of the art. Messrs. Twigg (279, General Hardware) have some very handsome specimens of the "Jeames" button, and some boldly embossed naval buttons, with appropriate ornament. Some of their cut-glass buttons in metal are effective. Messrs. Pigott's (281) bronzed buttons, with sporting subjects, are among the best we have ever seen: and Messrs. Hammond (282) have some particularly bold and well-executed device buttons—a set which we noticed, as made for a "Curling Club," being very characteristic. Messrs. Aston (283) not only show a handsome assortment of all kinds, especially of the Florentine class, but they introduce a series designed to illustrate their manufacture, a course which is very much in conformity with the spirit of the Exhibition, and one which we could wish had been adopted wherever it was conveniently practicable. Messrs. Inman (284) have also some bold and well executed buttons, some of them honoured with the episcopal *insignia*, and others for the servants of the London Docks. Some of the prettiest cut glass buttons in the Exhibition are in the case of Messrs. Neal and Tonks (285); and Messrs. Chatwin's case

(286) contains as highly finished specimen as any assortment around them. In connexion with Mr. Banks's buttons (287) are some large and fine specimens of the shells used in the manufacture of pearl buttons, above described, and these shells are from the Gulf of Persia and from the Sooloo isles. A very small, but pretty contribution is made by Mr. Knowles (289), consisting of gold plated and enamelled buttons—there are, we think, about a dozen only. Mr. Wells (290) exhibits some horn buttons of considerable merit. The case (295) contributed by Messrs. Smith, Kemp, and Wright shows us a very brilliant assortment. The sporting buttons, representing the neck-and-neck end of a race, the hunter clearing a hedge, the sportsman bringing down his partridge, with other varieties of amusement, are very cleverly designed. There is a good St. George and the Dragon, and indeed a very rich multiplicity of devices, enamels, crests, buildings, military and naval buttons, a capital lion, and other designs for ornamental buttons. We noted this in the Catalogue as a "very fine tray of specimens." Messrs. Allen and Moore (300), among many choice and beautiful articles in hardware, exhibit metal buttons of fine finish; and Mr. Aston (30) shows velvet buttons, which we marked as very rich in their effect. We have spoken of the manufacture of pearl buttons, and Messrs. Elliott (302) exhibit some with metallic rims—an arrangement which conveys the desirable idea of exceeding care in the finish. Messrs. Ingram (304) illustrate very fully the horn button in its history and varieties. Messrs. Heeley also (305) have some metal articles amid their beautiful hardware. Mr. Nash (310), a die-sinker, shows the dies by which the metal buttons are stamped. In a case (364), exhibited by Mr. Brisrabb, are specimens of the mother-o'-pearl button, and among them of the black pearl.

The general characteristics of the specimens of button manufacture must, of course, be, to a great extent, similar, the contributions being chiefly sent by first-rate producers, who, in running an honourable race with their rivals, all attain the point of excellence which leaves little room for diversity. In some of the cases there is more artistic taste, as regards the designs of ornament, than in others; but the mechanical finish of the whole array defies censure. The button manufacture of England is obviously and decidedly creditable to the country.

SUGAR-SPOONS. BY LIAS.



These spoons are of a novel and pretty pattern, and show very admirable execution and highly-finished workmanship,

GARDEN FURNITURE.

The two great troubles of amateur gardeners, especially ladies, are blistered hands and aching backs. The first of these may be considerably lessened by wearing gloves, where the nature of the operation will admit of it; but, for the pains induced by incessant stooping we see no remedy, and can only look for relief by the invention of tools which, by their peculiar construction, shall render frequent stooping unnecessary, beyond a certain "graceful bend"—at least, with regard to the operations of digging, hoeing, raking, weeding, drilling, dibbling, watering, sticking peas, sowing seeds, transplanting shrubs, cleaning garden rollers, &c. How far the various inventions intending to lighten and facilitate these garden operations will accomplish so desirable a result, it would be temeritous to affirm, without first obtaining some special experience; suffice it to say, that, in several cases, the promise has a very feasible look, and, in a few instances, we feel no doubt of the advantages to be derived from the use of such tools or implements.

One of the first things that attracted our attention in the department of Agricultural and Garden Implements in the Great Exposition was Boyd's patent double-action or self-adjusting scythe. It was not merely the scythe that caught our admiring eye, but the ingenious device of a little figure of Saturn, or Father Time, with *two* scythes, one of these being the old original scythe, which was carried over his shoulder, the edge of the blade being so close to his neck as to suggest that if he happened to stumble it would cut his head off, while in his right hand he holds Boyd's scythe, carefully shut up like a long clasp-knife, and so safe as to be incapable of doing injury either to the bearer or to anybody passing near him. This is evidently a great improvement. It is so much better than leaving such a dangerous instrument at all times open to do mischief, or else bundled round clumsily with whisps of hay or straw. Mr. E. James also exhibits a patent self-adjusting scythe, which can be put together without any assistance from a blacksmith, and shuts up like a knife.

Benjamin Ebbs offers a very remarkable garden implement for the use of ladies. It comprises a hoe, spud, and rake, all in one tool, and is very light to handle. It is proposed, by means of this, to enable a lady to root up weeds growing round strawberries, or other plants, hoe the earth round them, and rake it clear and smooth, and all this without any necessity for stooping down or changing the tools.

Henton's garden roller is a very ingenious and excellent invention for lightening the weight of the draught. Every amateur gardener has felt how hard a labour it is to drag a garden roller for any length of time, especially after rain or over heavy ground. On the usual plan, you have the full weight of the roller to drag; but in the present invention of Mr. Henton it is cleverly contrived that the weight of the roller shall contribute to its own motion, and, in fact, assist in rolling itself over. The inventor informs the world, on a scrap of written paper, appended to his roller, that it is the greatest invention in the whole Exposition, which is to be regretted and smiled at, and, we hope, pardoned.

We must call attention to Dean, Dray, and Co.'s stock of ladies' garden tools, such as hoes, rakes, and spades. They also present to our notice the "fruit-gatherer" (a staff or pole, with an apparatus at the top for cutting a stalk, and a little net bag, like an angler's landing-net, underneath, to catch the fruit that falls); and the "averuncator," which is an instrument for pruning the higher portions of fruit trees, plants, and shrubs, without the need of mounting steps or ladders. It is a pole, with a cutting-instrument at the top, like a bending forefinger, or a pair of semi-circular scissors, and seems quite likely to perform its office to admiration, provided its machinery does not get entangled in the boughs. But why call it by so pedantic a name as the "averuncator?" The "pruning pole" would be worth a thousand of it.

Clayton's spades for gravel, or clayey soils, and adapted to different works of a laborious kind, or in a confined space, seem to be valuable additions to our stock of agricultural implements.

Dr. Spurgus's hoes are of very novel formation, presenting a shape not unlike that of a sharp ace of clubs, the tops of Gothic windows, or like some of the apertures and ornaments in Gothic architecture. One of them rather resembles a bird standing upright, with his head cut off. They are light, curious, and we are disposed to believe they may be turned to excellent use in garden work.

The cast-iron garden-seats, tables, and chairs of W. Dray and Co. have a very handsome bronze-like appearance; they are strong, yet of elegant design, and are not expensive.

Mr. Francis Parkes exhibits a variety of spades and forks, the chief peculiarity of which seems to be their thinness, sharpness, and lightness. One of the spades, for instance, is so thin, that we should fancy the act of digging would very quickly be brought to a stand-still by the pain it would cause the foot, if it did not shortly cut through the boot; but perhaps the tool is not intended for digging so much as to be used as a shovel.

A refinement, amounting, we think, to dandyism, has of late made its appearance among our garden furniture, in the shape of delicate white porcelain labels for flowers and plants. There are likewise metallic labels for gardens and conservatories, which are very good; and we especially commend Mr. Restell's invention of flexible pegs, props, and wall-holders. The pegs we have found very useful indeed, during the present season, in pegging down verbenas, petunias, &c.

Toby and Son exhibit the model of a green-house, with potting-shed and fruit-room attached, and showing the boiler and hot-water pipes, with improvements in ventilation. This is a very good model indeed, and conveys a complete idea of what is intended. Their horticultural implements are likewise deserving of attention.

The ornamental ironworks of Edward Upfill are articles of great importance in garden furniture. We much admire the beauty and durability of their garden-seats, arches, entrances, alcoves, and general trellis-work for the training of roses, honeysuckles, clematis, and other creeping plants.

Thomas Smith's strawberry pan is an excellent invention. It is in form something like an inverted hat with the crown knocked out, and the broad brim turned down, or rounded over. Two or three strawberry plants being enclosed in the hat, their leaves and fruit will rise and roll over the broad brim, receiving heat from the surface they lie upon, which also protects them from the dust and dirt, and from being spoiled by lying in the damp after rain.

The sticking of peas is often found to be a fatiguing operation to amateurs; and, besides blistering the hands, the whole row is not unlikely to give way with the first good windy gust that sweeps across the garden, if not strongly fixed in the ground. To obviate this, Mr. W. Stent has invented a new pea supporter, which we commend to all amateur gardeners, more especially the ladies. Henceforth, so far as the growth of peas is concerned, they may consider themselves quite independent of the help of man.

For a "single seed planter" and a "single seed dibbler" we are indebted to Mr. T. Revis, of Stockwell.

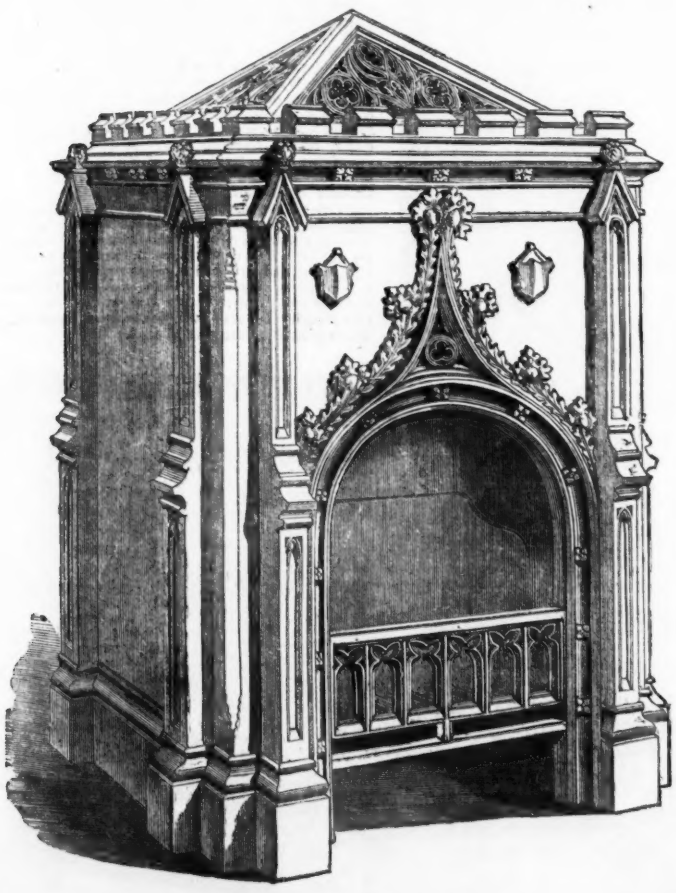
Everybody who has ever engaged in the delights and toils of a garden of any dimensions must know what it costs to transplant large shrubs and good-sized trees. But here again the Great Exposition offers us a helping hand, under the auspices of Mr. W. Seaward, of Oulton, Wakefield, who has designed a tree remover, "for transplanting large shrubs and trees." He also offers a "conifera supporter," to prevent cypresses, *arbor vitæ*, &c., from being broken down by the weight of the snow, which, from the form and position of the foliage of these and other trees of the kind, often loads them to excess, and, breaking off a large bough, frequently destroys the symmetry of the tree for ever.

To all those who have lawns, we beg to suggest that the invention of Mr. J. Watt, of Scotland, deserves attention. It consists of a machine on an improved principle for "broad-cart sowing," and is intended for grain and for all grass seeds. Nothing looks worse on a lawn than a number of bald patches. Here there is the remedy.

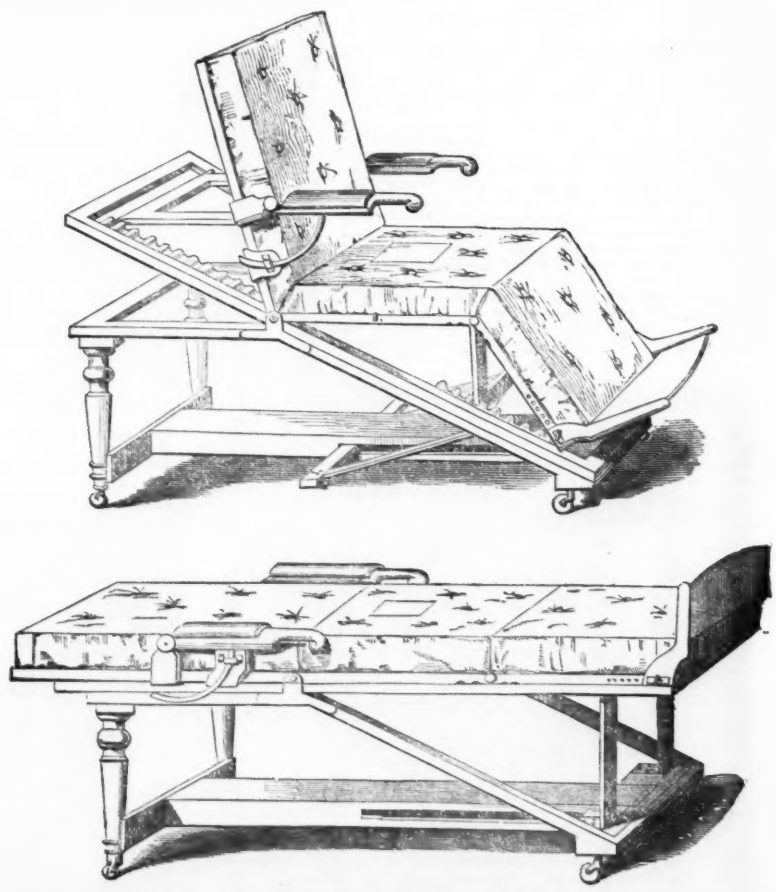
Mr. P. Green, of Leeds, exhibits an aviary and a garden seat made of wire. The light and airy appearance of these will probably render them favourites to those who once possess them. Garden seats and plant-stands are also exhibited by Mr. J. Holmes, of Newcastle-on-Tyne.

Aphides, caterpillars, and other insects, are dreadful pests of flowers and foliage, as every one who has a garden, or even a few plants, but too well knows. Behold, then, a remedy in Mr. D. Brown's patent instruments for fumigating, intoxicating, and rendering all those insects either utterly helpless and at your mercy (such as it may be), or reduced to so many little dead dry specks upon the leaves, according to the strength of the dose. Mr. Epps, of Maidstone, likewise offers us his "sulphurator," an instrument for throwing flower of sulphur in a diffused state upon grapes, hops, peas, roses, &c., for the purpose of destroying mould or mildew, two antagonists who are sometimes as voracious and fatal as the worst insects.

But who shall evade digging? Who that "gardens" shall ever escape the labour of the spade, with hot and blistered hands, and a breaking back? Who shall ever be able to shirk his spade? Why, everybody may do so now, since Mr. J. Parsons, of Stamford-hill, has invented a "digging machine." It is clear that we shall soon have the means of escaping from all manual labour, of every sort, in our gardens. We may sit in our seat of ornamental wire, or Gothic carving, or of rustic logs and branches, and see Mr. Parsons' machine dig; Mr. G. Fleming's machine destroy weeds, moss, lichens, &c., on our gravel walks; Mr. W. Keene's machine prepare seeds for sowing; Mr. W. Padwick's drills and dibbles make the earth ready to receive them; Mr. J. Watt's machine sow them for us; and the garden engines of Mr. Crump, of Derby, or Dr. Kennedy, of Dublin, water them after they have been covered over by the various patent spades and rakes of numerous other meritorious exhibitors.



HALL-STOVE.—BY PIERCE, JERMYN-STREET.



INVALID CHAIR AND BED.—BY MINTON.

HALL STOVE. BY PIERCE.

This is one of Pierce's registered pyro-pneumatic warming and ventilating stove grates, suitable for the entrance-hall or staircase of a gentleman's mansion: the outer coating being of cast iron, ground, polished, and bronzed; the interior is of prepared fire-clay, moulded in various pieces.

MINTON'S INVALID CHAIR AND BED.

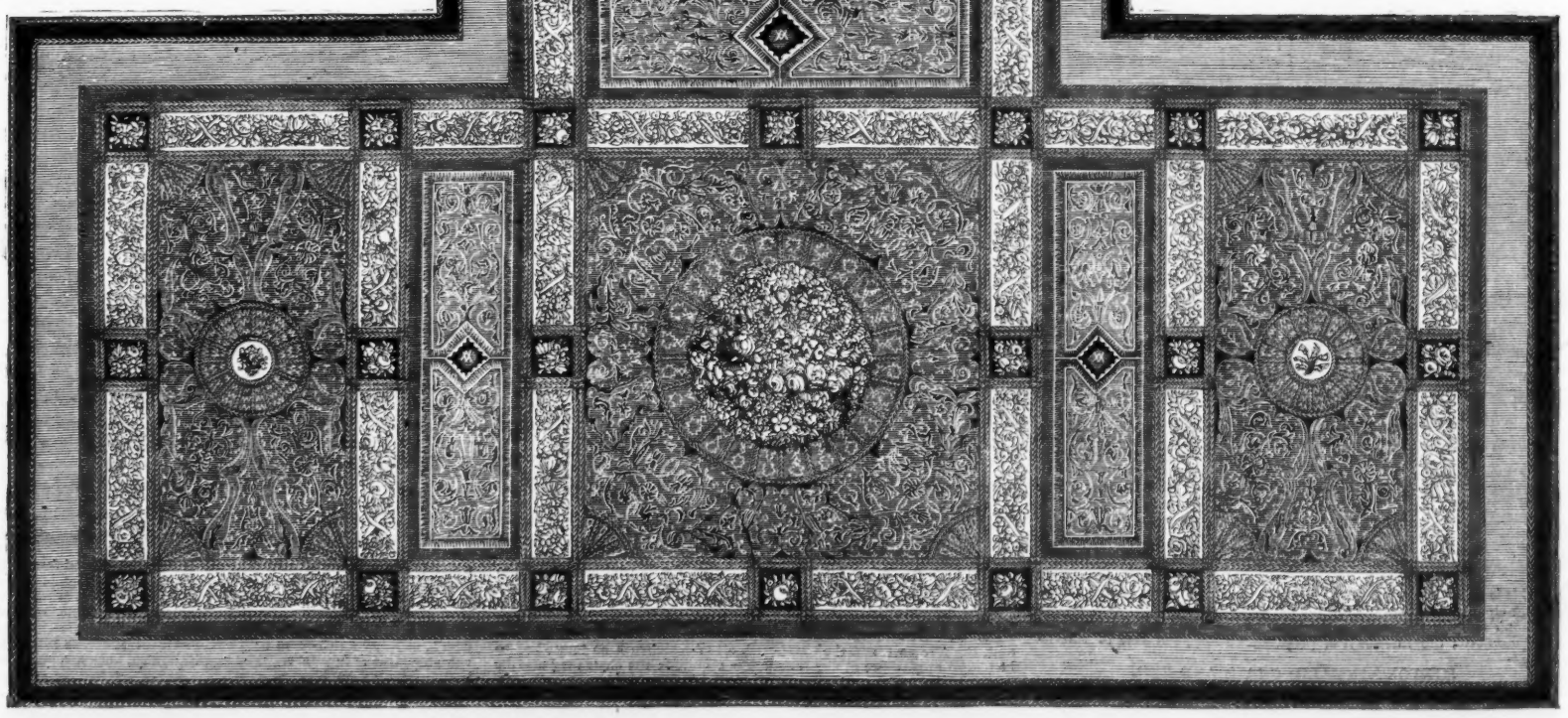
The Society of Arts have from time to time rewarded several persons for invalid beds and other humane contrivances for the mitigation of the sufferings of those afflicted with various painful complaints which "flesh is heir to." Minton's invalid chair, which is represented in our present Number, has very much the appearance of the class of inventions to which we have alluded. The chair consists of four parts—the back, the seat, the fore part, and the foot-board, all of which are so jointed as to be placed at pleasure at any inclination required; the chair may also be moved higher or lower, by means of rack-work attached to a long frame which is moveable on pivots. The whole may be moved from one part of a room to another by four castors attached to the feet of the stand. We have thus far described it as an invalid chair; but it will be seen by the second Illustration, that the whole is convertible, without any additional apparatus, into a bed, and thus a twofold object is attained, which, in many a sick-room with circumscribed space, is indeed a most valuable piece of furniture. For hospitals, also, such a contrivance will be found most desirable.

THE KENILWORTH BUFFET.—BY MESSRS. COOKES.

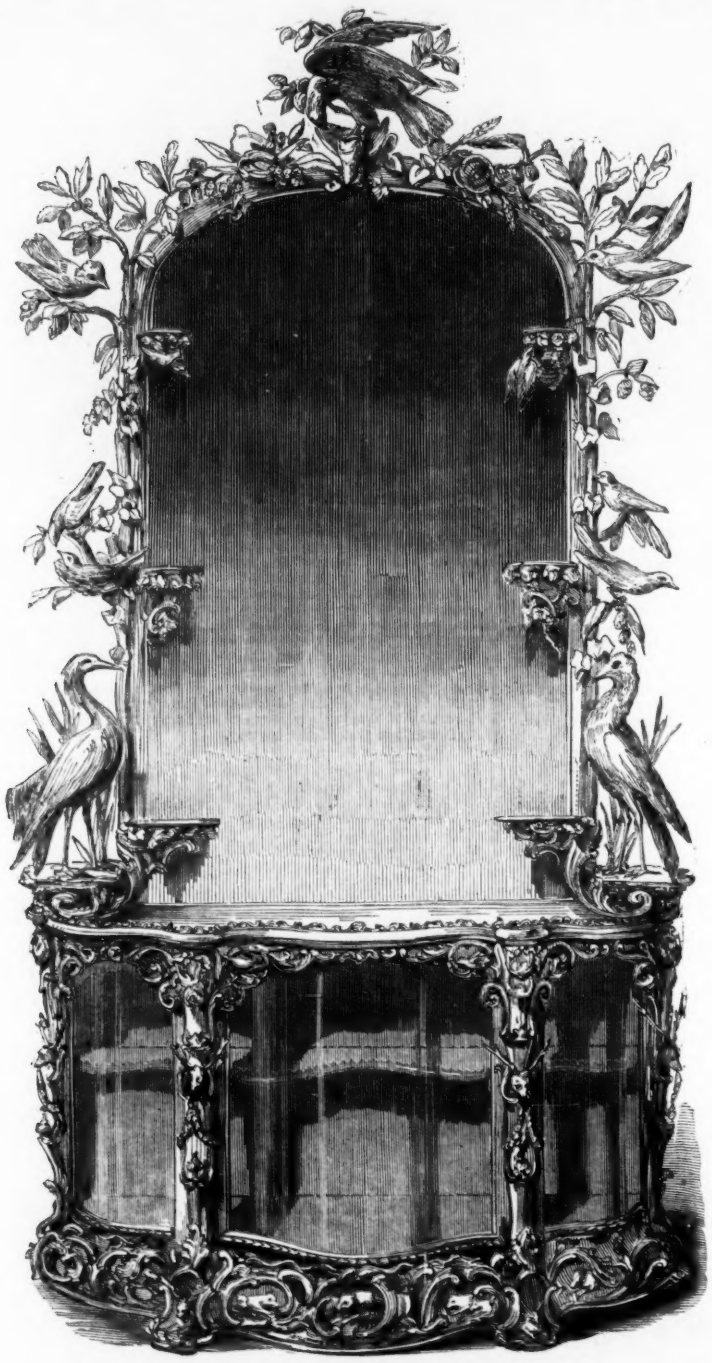
THE KENILWORTH BUFFET. BY COOKES, OF WARWICK.

Of this very carefully studied and ambitious work, which has been one of the chief lions on the British side of the Crystal Palace, we prefer giving, in an abridged form, the description of the makers:—

The wood of which this buffet was made was obtained from a colossal oak tree, which grew near Kenilworth Castle, in Warwickshire, measuring 10 feet in diameter, and containing about 600 cubic feet of wood, which was levelled in 1842, and afterwards purchased by the exhibitors. The subject of the design is the Kenilworth Pageant of 1575, in honour of Queen Elizabeth's visit to the Earl of Leicester, described by Laneham and Gascoigne, two attendants on the Queen in this "Royal progress," and vividly reproduced by Scott. The design of the centre panel, carved out of one solid block of oak, represents Queen Elizabeth entering Kenilworth Castle, in all the pomp usually displayed on these occasions. The cavalcade is seen crossing the Tilt Yard, and approaching the base court of the building by Mortimer's Tower. Leicester is bareheaded and on foot, leading the horse upon which his august mistress is seated, magnificently arrayed. The Queen (then in her 42d year) wears her crown, and has around her neck the enormous ruff in which she is always represented. Two pages and a long train of attendants follow the Queen and her host, composed of ladies, statesmen, knights, and warriors—some on foot, others on horseback. In the distance are soldiers and a mixed multitude of people. A portion of the Castle is seen in the background. At one end, the gateway through which the cavalcade is about to pass, is Mortimer's Tower, the remains of which are still in existense, and considerably heighten the romantic beauty of the Kenilworth ruins. At the opposite end of the panel, the Earl of Essex, Leicester's rival in the favour of Queen Elizabeth, is conspicuously seen, mounted on a charger. On the table part underneath the centre panel is displayed the Tudor rose, and surmounted by the Royal crown, with the famous motto of Elizabeth, "Semper eadem," on a ribbon. On the spandrils, supported by water-flowers and rock-work pendentives, are marine subjects taken from the "Pageant," namely, a Triton on the Mermaid, and Arion on the Dolphin, connected with Mike Lambourne's mishap, in the novel of "Kenilworth." The panel on the right or dexter side of the buffet recalls the scene in the same work when Queen Elizabeth meets Amy Robsart in the grotto, in the grounds of the Castle. The subject of the left panel of the buffet represents the interview of Queen Elizabeth and Leicester, after the exposure of the deceit practised upon her by the latter, and his marriage with Amy Robsart. Leicester is shown in a kneeling position, with one hand on his breast, and the other extends towards Elizabeth, as if appealing to her sensibility. The four statuettes at the corners are emblematic of the reign of Elizabeth. At the extreme corner of the right is Sir Philip Sydney, the nephew of the Earl of Leicester, whose character combined all the qualities of a great poet, warrior, and statesman. He died in 1586. The shape of Sir Philip's sword (which is still preserved at Penshurst) is singular, the handle being about sixteen inches long. On the opposite side of the same pedestal will be recognised Sir Walter Raleigh, who attained eminence in almost every branch of science and literature. He is arrayed in a courtier's dress, and the figure represents him in a thoughtful attitude, with a scroll and pen in his hand. Raleigh was beheaded on a charge of high treason, in 1618. On the left pedestal at the inner side of the buffet is a figure of Shakspeare, who is shown in reflective mood. The last figure is that of Sir Francis Drake, the first Englishman who circumnavigated the globe. An anchor is appropriately introduced, emblematic of his naval career; and the costume chosen is a court dress. The ragged staff mouldings of the Kenilworth buffet are imitations of the best examples in the Beauchamp Chapel, Warwick, where the Earl of Leicester was interred. The supporters to the projecting shelves also represent the proud crest of this splendid noble, the bear and ragged staff, borne by the Earls of Warwick from the most remote times. The small panels of the buffet behind the Leicester cognizance contain monagrams of the date of Queen Elizabeth's visit to Kenilworth Castle, and the eventful year 1851, with the cipher of the reigning Monarch, designed to record the era of the Great Exhibition of all Nations. Around the door-panels of the Kenilworth buffet are copies of architectural details still seen on the Gate-House. The upper part, above the shelf of each pedestal of the buffet, displays the monagram of the Earl of Leicester, encircled by the insignia of the order of the Garter, and surmounted by his coronet. The decorations on each side are specimens of Elizabethan ornaments, designed by the proprietors." An important feature in the production of this work is the introduction, by Mr. Walter Cooper, of *pointing*, the process adopted by sculptors in stone and marble, and by which greater accuracy is secured.



AXMINSTER CARPET.—DESIGNED BY GRUNER.—BY MESSRS WATSON, BELL, AND CO.—(SEE PAGE 465.)



CABINET AND GLASS.—BY HANSON AND SONS.

GOBLET. BY CONRAD KNOLL, OF BAVARIA.

Conrad Knoll's goblet, the model of which, in plaster of Paris, is exhibited in the Zollverein Hall, and which is intended to be cast in bronze, is covered with devices illustrative of "loving and living on the Rhine." Those who know what a German's enthusiasm is in behalf of his beautiful Rhine, will be able to estimate the spirit in which this little decorative work has been conceived, and the labour and care bestowed upon it.

DRINKING-CUP. BY JOHANN HALBIG, OF BAVARIA.

Here we have another tribute from German art to German nationality. This "Imperial German drinking-cup," or rather plaster model for one, is supposed to represent "the unity of Germany." On the top stands Germania in the Imperial States; the figures surrounding the cylinder are the allegories of the virtues necessary to unity. The coats of arms are those of the Federal States; on the cover that of the empire and the kingdoms; on the cylinder those of the smaller German States. It is thus that German thought and German aspiration, denied expression through "the ordinary channels of intelligence," as they call newspapers (for shortness) in the House of hereditary wisdom, find vent in allegory and plaster of Paris. In this light the cup before us is a curiosity; as a work of art, it has small pretension to admiration.

GOBLET.—BY CONRAD KNOLL. DRINKING-CUP.—BY JOHANN HALBIG, OF BAVARIA.

We should be sorry to detract unjustly from the fame already earned by the producers of this work, but we must say, that, considering the labour which has been bestowed upon it, and the historical and romantic interest of the incidents it proposes to embody, we are somewhat disappointed with the result. We cannot help thinking that more might have been achieved if less had been attempted. The work, in short, is over-crowded with details, some of which have little or no necessary connexion with the principal subject. Sidney, Raleigh, Drake, and Shakspeare, four worthies in four very different lines of business, have certainly no right to be forced into service as dumb waiters upon the scenes enacted between Queen Elizabeth, Leicester, and Amy Robsart; and, in an artistic point of view, they are *de trop*. The workmanship has been very carefully executed; but the wood is as yet raw, and would be the better for polishing.

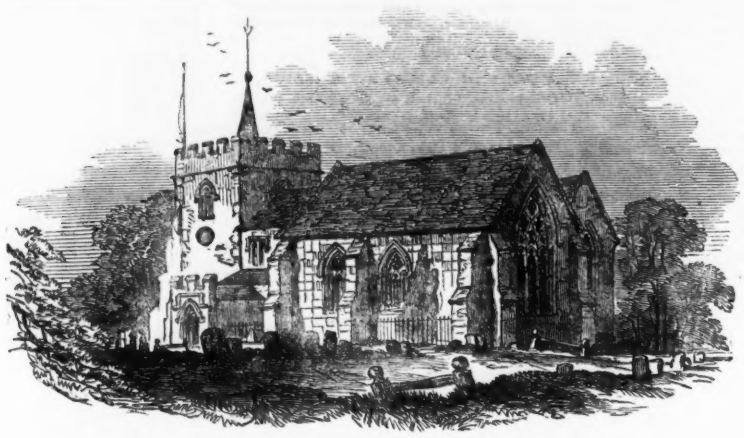
CARVED CABINET AND GLASS. BY HANSON AND SONS.

Amongst the choice and beautiful specimens of carving produced by British skill, we notice, as especially calling for praise, a very elegant commode or cabinet, by Hanson and Sons. In form it is well adapted both for utility and ornament, with considerable originality of outline. The carvings on the cabinet represent a wild boar hunt, which reminds one of the fire and energy of Snyders. On the frame of the glass are a number of birds, very naturally designed: the wary hawk securing his prey, the chattering jay, the cunning magpie, the twittering wren, the swift martin, the welcome cuckoo, the warbling blackbird, the lonely bittern, and the light and graceful egret, are all wrought with great accuracy of character and most delicate detail.

HORSE GROUPS IN THE RUSSIAN DEPARTMENT.

These little horse groups, which stand under the glass case in the Russian department, are remarkably spirited. They are in bronze gilt and are admirably executed.

HORSE GROUPS IN THE RUSSIAN DEPARTMENT.—FROM A DAGUERREOTYPE BY CLAUDET.



ABBOTT'S LANGLEY CHURCH.

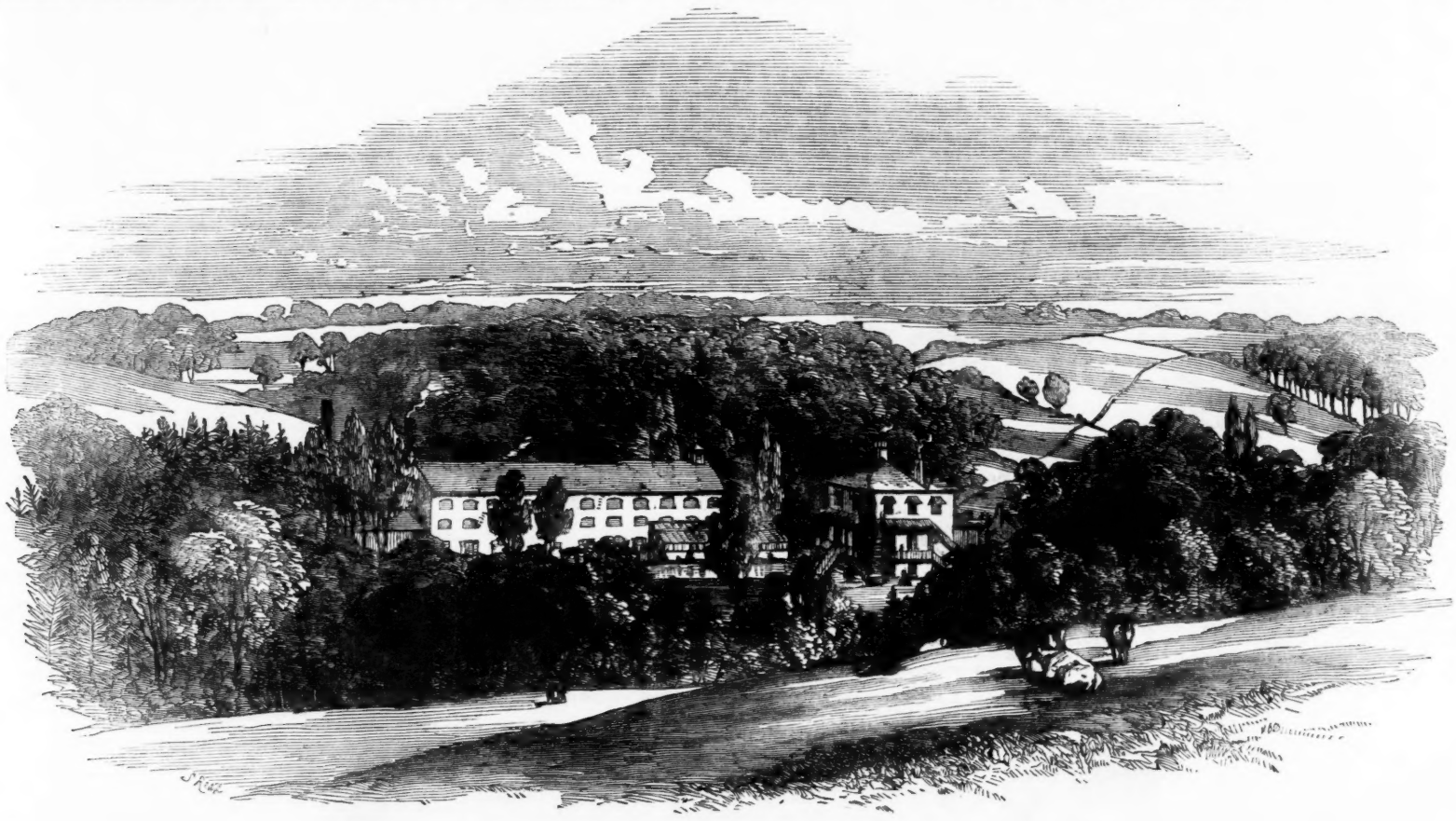
CASHIOBURY.

A RAMBLE IN HERTFORDSHIRE.

CASHIOBURY; THE GROVE; LOUDWATER; MOOR PARK.

THERE is no county in England of its size so rich in associations, and in stately seats of noblemen and gentlemen, as the small inland county of Hertfordshire. York, and Kent, and Surrey, and other counties, are only richer from their greater size. It is true that Herts has no cathedral; but she has St. Albans Abbey, one of the oldest and most instructive of all our mediæval buildings: then she has Verulam, with its rich store of Roman remains; Gorhambury, sacred to the shade of the great Lord Bacon; Hatfield, rich in the wisdom of the Cecils, and its collection of unpublished MSS., containing, it is thought, notices of moment about Shakspeare and his contemporaries; Panshanger with its noble old oaks and picture gallery, second to none in Italian art in England; Cashiobury, with its Vandyck, its Wilkie, its Landseer, its Lely's, and its woods and waters; the Grove, with its noble gallery of portraits formed by the great Lord Chancellor Clarendon; Knebworth, with its Lytton associations and its Bulwer interests; Moor Park, with its trees not to be surpassed in England; Bayfordbury, with its collection of Kit-Kat portraits, formed by that aristocrat of booksellers, old Jacob Tonson; Ware, and its great bed; and, not to run out of breath in a sentence with a further enumeration of choice spots, over which old Fuller would have dwelt delighted, let us sum up Herts with its sweet sylvan scenes and its trout-streams, the Colne and the Chess (hereafter, perhaps, to be conveyed to London), now sacred to Dryden, Sir Humphry Davy, and Sir Francis Chantrey.

To see the west side of Hertfordshire easily and "aright," get out at the Watford station of the North-Western Railway—an easy and cheap excursion; and if you have time, diverge a little to the right of the rail to see the church (St. Laurence) at Abbot's Langley, with its seated figure of Lord Chief Justice Raymond (d. 1732), executed at a time (early in the last century) when sitting statues were rare in monumental sculpture. Do not forget, however, while at Abbot's Langley, that Pope Adrian IV. (d. 1159) was Nicholas de Camera, a native of Breakspears, in Abbot's Langley parish, and that the house of the great stationer, Mr. John Dickinson, of the Old Bailey, stands pleasantly and invitingly on your right, while at its foot may be seen the "Booksellers' Provident Retreat," built chiefly by the exertions of Mr. Dickinson, and in itself an asylum to which many a goodly author (in reputation rather than in pocket) would be glad to find his way.



LOUDWATER MILL.

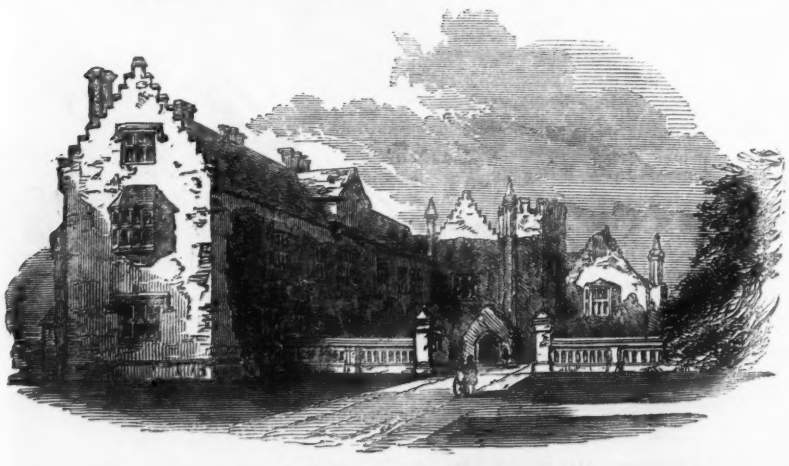
Leaving the Watford station, and skirting the town of Watford with its interesting church and Morrison and Capel Chapel attached, in which, by the way, the Earl of Essex, who was found with his throat cut in the Tower of London, lies buried, without a monument; pass on afoot, if you please, to Cashiobury, the noble residence of Capel Coningsby, Earl of Essex, lineally descended from the Lord Capel who lost his life for Charles I., and from his son, the Earl of Essex, who lost his (oddly enough) through Charles II. Cashiobury was so called, antiquarians tell us, from the residence there of Cassivelaunus, chief of the Cassii, from which the Hundred of Cashio, in Herts, derives its name. In Doomsday Book it is written *Caisson*. The manor belonged to the Abbot and Convent of St. Albans, and at the dissolution of religious houses was given to Sir Richard Morrison, the friend of Ascham. From the Morrison family it passed, by marriage, to Arthur Lord Capel, to whom we have already referred as dying for Charles I., and no earlier description of the house is known to exist than that in Evelyn. It was rebuilt by the first Earl of Essex of the Capel family, the same Earl who died in the Tower.

The Morrison house was pulled down (as Evelyn states) by May, and the house built by May was destroyed by the late Earl of Essex, who married Miss Stephens, the charming singer. The vaulting of the old Morrison house remains, with a very fine ceiling of May's building. The late Earl's architect was James Wyatt, who has rebuilt his house in his so-called "Gothic"—that is, very bad Gothic indeed, but picturesque and well-proportioned withal.

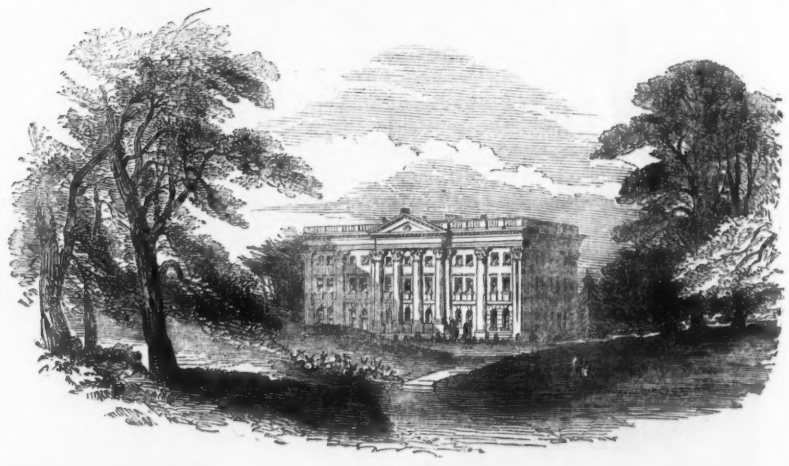
The grounds should be seen; they are very beautiful (witness in print Mr. Britton's "Cassiobury"), and the present Earl with great liberality allows strangers to see them with every necessary freedom. The private gardens are especially beautiful. In the house, to see which an introduction is required, the stranger will find some good and some remarkable portraits.

Leaving Cashiobury, and stepping northwards through the park, if you know your way, and it is a most charming walk, you reach the "Grove," the seat of the Earl of Clarendon—a plain red and grey brick-built house, without any architectural pretensions. It was the seat or domain of the Heydons, founders of the Morrison Chapel, on the south side of the chancel of Watford Church. From the Heydons it passed to the Grevilles, and was bought, in 1753, by the Hon. Thomas Villiers (second and youngest son of William, second Earl of Jersey), the first Earl of Clarendon of the new creation (died 1786). The grounds join Cashiobury on one side, and Langley-Bury on the other, and, though flat, afford a few pleasant walks.

Among the pictures (all portraits) are some of that valuable series of



THE MANOR-HOUSE, CHENIES.



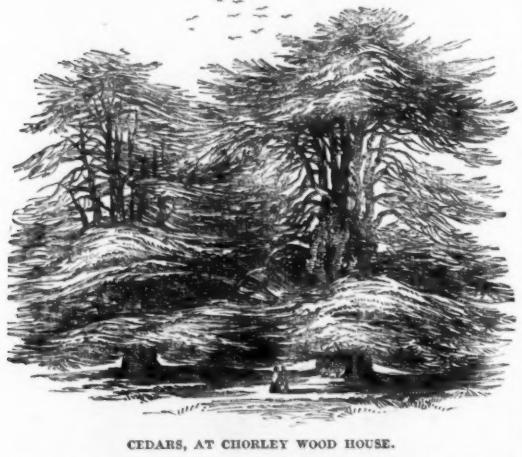
MOOR PARK.

heads of eminent men formed by the great Lord Chancellor Clarendon, and which are described by Evelyn in a letter to Pepys.

THE GROVE.

To see the collection at the "Grove," it is necessary, as at Cashiobury, to have a letter of introduction.

The pedestrian who knows his way, loves withal a pleasant walk, and can climb a fence or two, will find a charming way of his own (as we have done) to Loudwater, and that rich streamlet, in trout, the Chess. At Loudwater Mill is made much of the paper on which the ILLUSTRATED LONDON NEWS is printed; and in its neighbourhood may be seen Chorley Common, one of the healthiest retreats in any midland county of England, and the cedars at Chorley Wood (see our Illustrations in both instances), not to be surpassed, unless, perhaps, at Painshill, in Surrey. Of the manner in which paper is made at Loudwater Mill, we may have occasion to speak in a future Number.



CEDARS, AT CHORLEY WOOD HOUSE.

Leaving Loudwater, the tourist will find a still pleasant walk continued to Chenies and Latimers. At Chenies, properly Isenhampstead or Iselhampsted, but deriving its present name from the ancient family of Cheyne, may be seen the chapel (attached to the church) of the Russells, Earls and Dukes of Bedford. Thomas Cheyne, the first of the family who settled at this place, was shield-bearer to Edward III., and in such capacity carried before that King in France the decayed shield and sword still to be seen near the King's tomb in Westminster Abbey. From the Chenies the place passed to the Sapcote family, and from the Sapcotes, by marriage, to the Russells. Leland, our earliest English antiquary of any name, visited the place in the reign of Henry VIII., and thus describes it:—

The old house of the Cheynics is so translated by my Lorde Russell, that hath that house in the right of his wife, that little or nothing of it in a manner remaineth untranslated: and a great deale of the house is even newly set up, made of brike and timber: and fair loggings be now erectid in the garden.

The house is within diverse places richely painted with antique workes of white and black.

And there be about the house two parkes, as I remember. The maner place standeth at the west ende of the paroche chirche.

In the paroche (church), on the northe side of it, as in a chapelle, be two tumbes of the Chaynes Lordes of the Manor ther, and the small village bearing their name.—*Leland*, i. 117.

In this chapel are buried William Lord Russell, beheaded in the reign of Charles II., and "that sweet saint" his wife, Lady Rachel Russell, who sat by his side during his trial, and took notes for his defence. Here also were married that madcap nobleman, Philip Earl of Pembroke and Montgomery, to that magnanimous lady, Anne Pembroke Dorset and Montgomery, who made so noble an answer to the electioneering secretary of Charles II. Here, too, is buried the first wife of Lord John Russell; and here the Premier himself—

All heads must come to the tomb—

will some day be buried. The Francis Earl of Bedford whose stately monument adorns this chapel, was the godfather of the famous Sir Francis Drake. The old manor-house, described by Leland, will be found (see our Engraving) to retain many of its pristine beauties.

We would willingly carry our readers on to Latimers (a lovely spot), but we must now retrace our steps till we reach Rickmansworth Park, the beautiful seat of Sir John Kirkland, the army agent. Passing through the park, we reach Rickmansworth itself, where the barrel of beer, given

DRINKING THE BARREL OF BEER AT RICKMANSWORTH.

every day by a wealthy brewer of the town to the poor and to passengers, has, we found, much to our disappointment, run to its last dregs. Still there is Moor Park before us (a lovely walk), and we have time to reach the last train to London from Watford; for, unfortunately, the demon of rebuilding has left nothing to see at Rickmansworth Church but the plain tablet tomb of Sir Robert Carey, Earl of Monmouth, the same Robert Carey who carried, in three days, the news of Queen Elizabeth's death to King James, at Edinburgh, and was rewarded by the King for his pains and great expedition; the same Earl, moreover, whose memoirs of his own life are so highly interesting. He was the son of Lord Hunsdon, cousin-german to Queen Elizabeth, and, therefore (it so happened), a near relative to good Queen Bess.

Crossing the Colne, and reflecting how many fruitless endeavours have been made from Edward Ford's attempt in 1641 to our time, to convey the waters of the Colne to London, we enter Moor Park, the seat of Lord Robert Grosvenor, M.P., brother of the Marquis of Westminster.

Moor Park and house was purchased, and a former house built, perhaps on the same site as the present, by George Neville, Archbishop of York. Edward IV. had promised to make that prelate a visit there, and while he was making preparations to receive his Royal master he was summoned to Windsor, and arrested for high treason. The King seized at the Moor all his rich stuff and plate, to the value of £20,000, keeping the Archbishop prisoner at Calais and Hammes. There was a survey of the house in 1568, by which it appears the mansion was of brick, the chief buildings forming a square court, entered by a gatehouse with towers. The whole was moated. It was then in a dilapidated state. At the Restoration, if not earlier, it was purchased by Sir John Franklyn, whose son sold it to Thomas Earl of Ossory, son to the Duke of Ormond, who also sold both the seat and park to the unfortunate Duke of Monmouth. The Duchess of Monmouth, on whom it was settled by marriage, sold it in 1720 to Benjamin Hoskins Styles, who built a south front of stone, with colonnades, by which an opening was made through the hill towards Uxbridge. A north front was also erected, and another hill cut through towards Watford at the same time for a vista.

The trees are some of the finest in England, many of them lying with their lowest branches to the ground in the richest luxuriance. The Duchess of Monmouth is said to have pollarded all the oaks, in remembrance of her husband's execution. But this, Mr. Paxton informs us, —a deservedly great authority in such a matters—could not have been the case. The present house was built by Leoni and Sir James Thornhill, and the terrace front affords a charming view of Watford Church in the distance. The pictures are few in number and poor; but the park richly deserves to be seen, as it will be remembered from the praises of Sir William Temple, and the reputation it has obtained for its apricots and lettuces. The "Moor-park apricots" were planted by Lord Anson; the "Moor-park lettuces," by we know not whom.

But it is time to be nearing Watford; and ere we reach the station it is dark, with little to see but the broad sky line of the trees skirting Cashiobury-park.

SITE OF THE CRYSTAL PALACE.

(To the Editor of the ILLUSTRATED LONDON NEWS.)

In your Journal of the 27th inst. I read a resolution passed by the local committee of Bolton, that, in the event of the removal of the Crystal Palace, four monolithic blocks of granite be erected, at each corner, to mark its site and dimensions; and the resolution further suggests, that these four blocks be made ornamental, as the bases of statues emblematic of the four great divisions of the Exhibition, or of the four Continents which had contributed to it; and also, that a statue of Prince Albert be erected, either in the centre of the space now occupied by the Crystal Palace, or in some other suitable situation. It seems to me that these suggestions are excellent in themselves, and deserve careful consideration; but I would venture to suggest some additions, which I cannot but think are improvements. I think that four moneliths are not sufficient to distinctly mark out the vast dimensions of the Crystal Palace with that accuracy which its admirers would look for; and four monoliths, moreover, erected on a plain and unbroken surface, would fail to convey to succeeding generations an adequate notion of the great length of that marvellous Building; for, as nothing would intervene from pillar to pillar, the eye would have nothing by which to measure the distance. To obviate these objections, I prefix the following additions to the plan:—

That the site of the Building be marked by two broad gravel walks, intersecting at right angles; and the extreme angles of the Nave and Transept denoted by eight monoliths, inscribed in the way suggested by the Bolton committee. That in the centre of the intersection of the two broad walks (which would be the spot now occupied by Osler's fountain), a colossal statue of Prince Albert be erected.

That four statutes of large dimensions, "emblematic of the great divisions of the Exhibition, or of the four Continents which have contributed to it," be erected at the four points where the Transept meets the Nave.

And that, further to mark the exact dimensions of the Palace, four avenues of trees be planted along the two broad walks. These, besides being in themselves a great natural ornament, would furnish measurement, as it were, by which the area of the Building could be accurately judged.

The two great broad walks might be called the "Great Exhibition Avenue" and the "Paxton Avenue," or by other names commemorative of the Crystal Palace.

If the Crystal Palace is removed, there will remain what Dickens truly terms, in his *Household Words*, "the dirtiest, most unmeaning, and least inviting part of Hyde Park;" but the plan I have suggested would, I think, convert it into a most delightful promenade, and an ornament, worthy not only of the great metropolis, but also of that Great Exhibition, the dimensions of whose extraordinary Building it would thus accurately preserve. The Transept walk might be continued to Rotten-row, and separated from it by close stone pillars, similar to those in Trafalgar-square.

I remain, sir, yours truly,

DELTA.

TEMPERATURE OF THE GREAT EXHIBITION.

The 1st of May premised many experiments at the Great Exhibition. Perhaps not the least extraordinary was to be the collecting, day after day, 50,000 or 60,000 persons, and putting them under one huge glass cover in comfort for several hours together. The Executive had the thermometer all their own way throughout the month of May and for half the month of June. Severe weather very kindly set in on the 25th April, from which day the mean temperatures continued below their average values for the same period for the preceding ten years as much as 4 degrees Fahrenheit up to the 19th of June, after which the open air gave 3 degrees daily in excess of the averages. On this day things took a desperate turn; and Mr. Bennett, F.R.A.S., of 65, Cheapside, who had fixed twenty of his standard thermometers at different points of the Building, above and below, found a sudden rise in the mean temperature of the day, amounting to 10 deg.; the 18th showing 64·8 deg., and the 19th, 74·8 deg. This was a shilling day, with 63,863 visitors. If this weather continued, it was clear something must be done; and finding matters grow worse till the 26th, when the thermometer rose to 2 deg. above summer heat, viz. 78·6 (20 deg. "Reaumur," 10 deg. being "temperate"), the climax was reached. On this day the mean was the highest that has been felt during the Exhibition. At four P.M. the thermometer No. 5, placed on the north-east corner of the gallery, among the wax flowers, registered 97 deg. The public could not stand this, even to witness the grandest sight that man could produce; and, after serious consultation, the glass ends of the Building at the entrance were removed on the 2nd of July, upon which down came the thermometer from 79·4 deg. to 66·6 deg. Since this alteration, 73·4 deg. has been the maximum, with one solitary exception.

Still a difficulty of breathing was felt in the upper regions. The rarified air caused by the exhalations of the people below rushed up through the galleries, where the heat averaged 4 degrees above that of the main avenue, and frequently higher still during the crowded hours of the day. July 7, glazed arches at various parts in the galleries were removed. After this the temperature in the galleries and the ground-floor became more uniform.

Fifty thousand pairs of lungs enjoyed daily the constant current of fresh air. This kept the multitude below the grumbling point till the 19th July, when Saturday, with its 5s. admission, brought a thin attendance (9326). The first sudden transition from heat to cold was instantly felt throughout the Building. Down went Fahrenheit to 59 degrees, and, therefore, called for measures in an opposite direction, and accordingly up went the louvres and ventilators, till the temperature was again adjusted.

Thus man has made nature, to a great extent, obedient to his will, in the very difficult matter of ventilation, in a building 1850 feet long. And thus, by strictly observing the indications of a very sensitive and delicate instrument, an amount of comfort has been preserved, under trying and extraordinary circumstances.

COLT'S REVOLVER.

(To the Editor of the ILLUSTRATED LONDON NEWS.)

In a late Number you speak of the American revolving pistol as possessing this distinguishing feature, that it has only one barrel—a fixture—the compound breaching being made to revolve. In common with many of the visitors to the Exhibition, I had greatly admired the very neat contrivance used in the construction of these pistols. On visiting Paris, however, a short time ago, I observed among the collection of ancient armour exhibited in the Hôtel de Cluny, Rue des Matturins, a musket of the date of Louis XIII. or XIV., apparently constructed upon the same principle. I was not permitted, of course, to examine the piece in question, and, therefore, I cannot speak with certainty of the mechanism by which the compound breech was made to revolve; but there were the distinctive characteristics of Colt's Revolver—the single fixed barrel, and the compound breech holding six or eight charges. Perhaps some of your readers, better acquainted with the subject, or more favoured with opportunities of examining the collection, may throw light upon this coincidence. It seemed to me that the American invention had been anticipated by some 200 years. The musket will be seen close to a large two-handed sword. I forget the precise number in the catalogue, but I think it is near 1450.

Your most obedient servant,

A CONSTANT READER.

TAXIDERMY.

(To the Editor of the ILLUSTRATED LONDON NEWS.)

SIR,—If the public had been duly informed that specimens of taxidermy in the Crystal Palace were deposited there for admiration only, I should not venture to trouble you with these few lines.

Under the delusion that man's opinion is always considered free in public exhibitions, I now find, by the communication of the Rev. Mr. J. B. P. Dennis to you on the 8th, that I have been in error; and that I ought not to have sent you the remarks which you kindly admitted into your columns of August the 2nd. I crave pardon for the mistake: "*Humanum est errare.*"

As that gentleman (by having used the word "perhaps" in his late communication) seems to doubt that I will allow his stuffed peacock to be good enough for presentation to the British Museum, I beg to ask him softly, if he were quite wide awake when he placed that peacock in the Crystal Palace. His "real principle of taxidermy" ought to have suggested to him, that much time, very much time and labour, are to be spent upon the legs and toes of large birds, especially, in order to make these parts retain their pristine form and beauty. On viewing the shrivelled legs and toes of the Rev. Mr. Dennis's peacock, we feel dissatisfied; and we are at a loss to determine whether inability or neglect has been the cause of such a lamentable deformity to his bird. When your rev. correspondent shall have cleared up this little matter satisfactorily, I will then invade the upper regions of his peacock. At present, it were useless to inspect the garret, when the foundation itself is seen to be defective.—I have the honour to be, Sir, your obedient servant,

Walton Hall, Sept. 27, 1851. CHARLES WATERTON.

TO CORRESPONDENTS.

A VERY OLD SUBSCRIBER.—The colours of a coat of arms are strictly to be adhered to in the blazonry. A gentleman, entitled to quarter his mother's arms, *impales* with his quartered shield the coat of his wife's family. There is no peculiar meaning in the collar and chain

A SUBSCRIBER.—It does not follow that persons of the same name have the same arms. Arms attach to the family.

H B.—We apprehend that the heir is the only son named

IGNORAMUS.—The boars' heads are the family bearing: the other devices are quarterings

Αλφα.—*Arms* of Warren: "Chequy or and az. on a canton gu. a lion rampant arg. *Crest:* On a chapeau gu. turned up erm. a wyvern arg. wings expanded, chequy or as"

Z Z Z Z.—The child of an heiress is entitled to quarter his mother's arms, but not to use her family crest. Unless by specific grant, or by the adoption of an additional surname, one crest only can be borne. Lord Willoughby d'Eresby, having two surnames, bears two crests

B D.—On the shoulder or body of the roebuck

L.—1. A misprint. 2. "Elder" is the correct expression; though "eldest" is more common

T B.—Musical glasses may be had of Knight, Foster-lane, Cheapside

ROB ROY, Carlisle, had better apply to a cutler,

PIKE, Lincolnshire.—The price of the work is 5s

G T, Northfleet, will not be responsible for the second debt

ORION possibly alludes to the diploma pictures of the Royal Academy admission to see which is obtainable by a written application to the keeper, at the Gallery

B B, Cheadle.—The letter in question appeared only in the newspapers

R L R.—We cannot undertake the recommendation

O, Chatham; and EXPECTANT.—We cannot inform you

W F, Handsworth.—The address is 20, Little Drummond-street, Euston-square

A M'B, Southampton.—Power's statue of the Greek Slave is in marble

AN EIGHT YEARS' SUBSCRIBER, Birkenhead.—Alfred Tennyson is the son of a clergyman of Lincolnshire, to which county the allusion in "Alton Locke" refers.

H X.—The drawings will be returned, if desired

A CORRESPONDENT.—The account of the "Grande Chasse" did not reach us in time

VERECUNDIA.—Apply to the clergyman of your parish

H P W.—Apply, for works on Emigration, to Mr Saunders, publisher, Charing-cross

VIDOCQ, Prestelgn.—See the "Shilling Handbook of Oil-painting"

GLATSON.—The address of each of the leasees is Old Brompton

M G J.—See the "Hand-book of New Zealand," published by Parker and Son, 445, West Strand

PYROTECHNIST.—See a volume upon Firework Making, published by Simpkin and Marshall

Z Y.—The system is well adapted for learners

INQUISITOR, Liverpool.—Double Numbers are charged One Shilling

PLATO.—The exhibition has not been announced

W C, Pittsburgh, is thanked. We have already engraved the mouth of Chagres River

J H P, Bridgewater.—Apply respecting the brasses to Mr Bell, bookseller, Fleet-street

A CORRESPONDENT.—Dr Kahn's Anatomical Museum has been removed to Manchester, for a short time

R L, Bolton-le-Moors, probably refers to Hugh Miller, "On the Old Red Sandstone"

J T B, Lincolnshire.—The publication will be speedily announced

J M, Dalston, states that it was the ex-Bishop of Madras, and not the Bishop of Calcutta, who addressed the meeting at Liverpool, on the 23d ult

AN HABITUAL READER; and STENOGRAPH.—See Davidson's "System of Short-hand"

OPTICUS should apply to Mr Rose, optician, Featherstone-buildings, Holborn

J B T B is mistaken: only one of the smaller fountains in the Crystal Palace "plays" Eau de Cologne

QUERIST, Nantwich.—The Journal, to be sent post free, must be the stamped edition

IGNORAMUS.—Utopian signifies theoretical or imaginary, and is derived from Sir Thomas More's "Utopia," which describes an imaginary pattern country and people, and has thus added a word to the English language

VERITAS.—We cannot spare room for the letter on Bloomerism

"A Week at the Lakes," by a Cockney, will not suit our columns

J R E.—See the Guide to Port Phillip recently published

The Capture of the Slave Brig *Eolo* did not reach us in time

P T, Outwell.—The subject is not suited for our columns

NISBIA AND HARNEMAN STATUE. we have not room for

J A, Liverpool, is thanked; we have not room for the Illustration

G W T, Manchester.—The flooring boards of the Crystal Palace are laid half an inch apart

AN AUSTRALIAN SETTLER.—As if written "Lowthe"

J M H L.—The tax on armorial bearings is the same for a simple crest on a seal, as for the ostentatious display on a carriage of the whole coat of arms

A CONSTANT SUBSCRIBER.—The Archbishop of Canterbury's *special license* will be of avail anywhere in England. The expense is heavy: it may be obtained at Doctors' Commons

A QUERIST, X.—Crest of Parkes: "In an oak tree arg. a squirrel sejant ppr."

MARS.—The price of a Cornet's commission in the Dragoon Guards and Dragoons is £840. Apply at the Horse Guards

ZEBEDIAH shall be answered next week

T C E.—Hingston, of Holbeton, Devon—"*Arms:* Gu., an arm in armour ppr. holding a Danish battle-axe arg. *Crest:* A hind's head couped or," holding in the mouth a holly slip." Hingston, of Aglis, county Cork—"*Arms:* As. a chev. erm. between three leopards' faces salient ppr. *Crest:* A demi-lion rampant, ppr. *Motto:* Deum possi adjatorem"

A WORKING MAN LOOKING FORWARD TO REST.—Apply to the Trafalgar Assurance Company, 40, Pall-Mall

AN OLD SUBSCRIBER.—Berry, of Devon—"*Arms:* Gu., three bars or. *Crest:* A griffin's head erased, per pale indented arg. and gu."

H H, Liverpool.—Arms of Ledyard: "Gu. on a fesse or, between three wolves' heads, erased pean, five lillies slipped and inverted"

MILES.—Hill, of Thornton, Yorkshire: "Sa. a chev. eng. erm., between three leopards' faces arg."

A A F.—The seal impression sent exhibits the arms of the Berkeley family

A V.—The translations are, "Dwelling below, and looking above," and "By industry and hope"

CLERICUS.—The present Lord Clifford is a direct descendant of Thomas Lord Clifford, High Treasurer *temp.* Charles II

AN OLD SUBSCRIBER, Stepney.—Arms of Barnes of Berkshire: "Arg. two bars between six muscles—three, two, and one—sa. *Crest:* A demi unicorn erm. horved, collared and lined or." Barnes of London, 1614, bore "As. two lions passant guardant arg. *Crest:* Out of clouds ppr. issuing rays paleways or, an arm erect, habited of the last, holding in the hand ppr. a broken sword arg., hilt gold"

LINA.—The prefix "the" is not incorrect

NAUTICUS should apply to a yacht builder

ION, Brighton.—Declined

W F, Isle of Wight, is thanked

G F F is thanked

MARY.—At St James's Theatre

F W R.—"Better" and "worse" are best

ERRATUM.—In the article on Boots and Shoes, in the Great Exhibition, for "Goodever' read "Goodeve."

CAMBRIA.—Apply at the Austrian Embassy

HUMANITAS.—Received

W J, Birmingham.—Received

J B R.—We have not room for the lines

C J C.—Six months' notice from Lady Day

J L A.—We cannot inform you

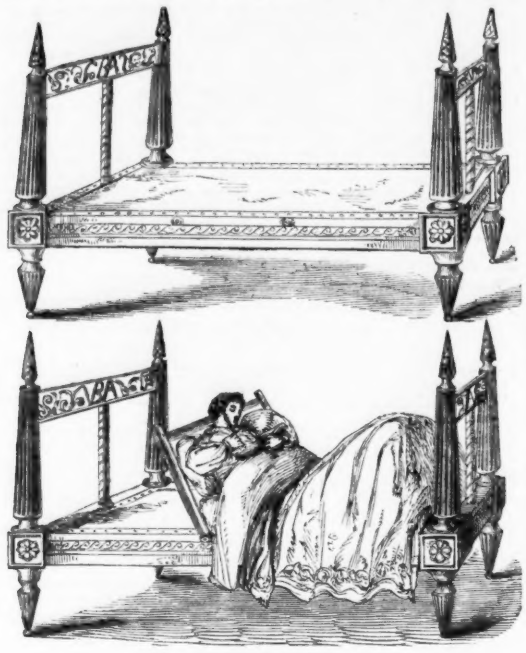
PATENT SHUTTLELESS POWER-LOOM. T. S. REED AND CO., DERBY.—CLASS VI., No. 85.

The ordinary loom for weaving ribbons and other narrow fabrics requires, for the perfect play of the shuttle, a space three or four times greater than is occupied by the web. In all looms hitherto constructed, the shuttle has been an indispensable necessity. To overcome this, and economise space, and, consequently, greatly to reduce the cost of production, has been the aim of the invention of T. S. Reed and Co., of Derby, the patentees of the loom we are now describing. The principle is original, yet simple, and may introduce many improvements in the art of weaving. The loom is now filled with a fringe about 2½ inches wide, of which it produces 34 breadths at once, while the ordinary loom, with the same length of beam, could not produce more than 13 or 14 breadths. Under the beam there runs a cam shaft, giving motion to the various parts of the loom. Attached to the breast beam there are levers or fingers that turn on a hinge horizontally; at the end of the fingers there is a small eye, or hole, through which the shute runs. As the warp opens to receive the shute, the finger moves and carries the thread across. At the same instant a needle rises and catches the loop of the returning thread, and holds it tight until the finger has returned and the batten advanced, when another change in the warp thread takes place; then the needle, which is flattened at the upper part and sharpened like the blade of a knife, by a downward motion cuts the loop, and the fringe is complete. This process is repeated very rapidly, and is very interesting. In addition to the economy of space, it is clear, that where there are no shuttles there are no pirns or quills to fill, and no stoppage of machinery while the change of quill is being made. The silk, being wound on large bobbins behind the harness, is supplied with facility, and when the loom is once started, it need not stop until the warp is finished.

It may be interesting to record the fact, that, when the Queen and Prince Albert made their progress through the various departments of the Crystal Palace, and summoned the exhibitors to attend to explain the peculiarity of their inventions, few, if any of the machines, received greater attention or excited deeper interest than the Patent Loom, which Mr. Bennoch, of the firm of Bennoch, Twentyman, and Rigg, Wood-street, London—one of the proprietors—had the pleasure of explaining. The peculiar neatness of the movement, and the showy effect produced by the variety of colours made at once, seemed to delight the Royal children; for several mornings they attended regularly, asking questions, and at last, through one of the attendants, requested a piece of the work, which, of course, was given with much pleasure by the weaver, who will not readily forget his mornings with the younger branches of the Royal family.

THE DEVONIA BEDSTEAD. BY JOHN LEE, OF BIDEFORD.

This invention, which is intended for the use of invalids, consists, in addition to the ordinary bedstead, of a steel quadrangular frame, over which is spread a soft felt or web. This web covers the bed. By means of a screw, the frame, with the web and invalid, may be raised to any height, so that the attendant can make up the bed, and change the clothes, without moving or in any way disturbing the invalid. The frame is divided into three parts by joints, and by means of another



DEVONIA BEDSTEAD.—BY LEE.

screw the upper part of the body, with the bed, is raised to any required position; and by a third screw the knees and feet may be elevated, and the ham-strings flexed, which will be a great convenience in case of fractured limbs.

LIBERATION OF CARACTACUS. BY PANORMO.

This, though somewhat roughly modelled, is one of the most expressive and well-studied pieces of sculpture on the British side of the Exhibition. It is by a young artist of the name of Panormo, a student of the Royal Irish Academy. The incident represented is well known to all readers of our country's history. Caractacus, after nine years unequal combat with the Romans, is subdued and taken captive, along with others, to Rome. Whilst being paraded through the magnificent streets of that city, he exclaims, in a tone of sublime melancholy, 'How is it possible that a people who are possessed of such magnificence at home, should envy me a poor cottage in Britain!" The Emperor Claudius was so affected by the homely truth of these few words, which he overheard, and the noble and interesting bearing of his Royal captive, that he immediately ordered him to be set at liberty, together with the rest of the prisoners. The artist has seized the moment when a Roman soldier is knocking the rivets off the noble Briton's chains, who still bears himself with a calm dignity superior to the vicissitudes of fortune.

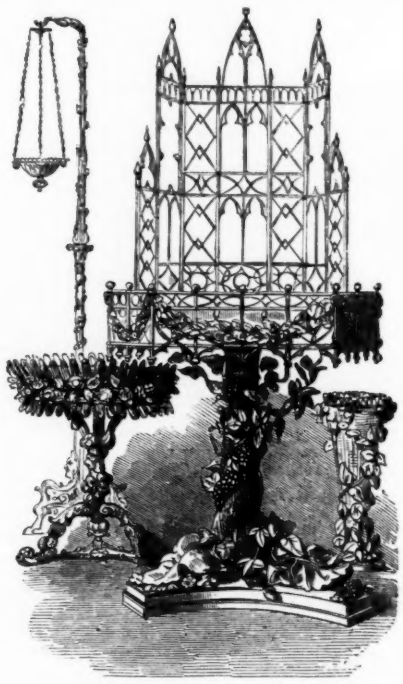
FAN.—BY DUVELLEROY.—(SEE PAGE 465.)

THE ROSE WATCH. BY J. JONES, STRAND.

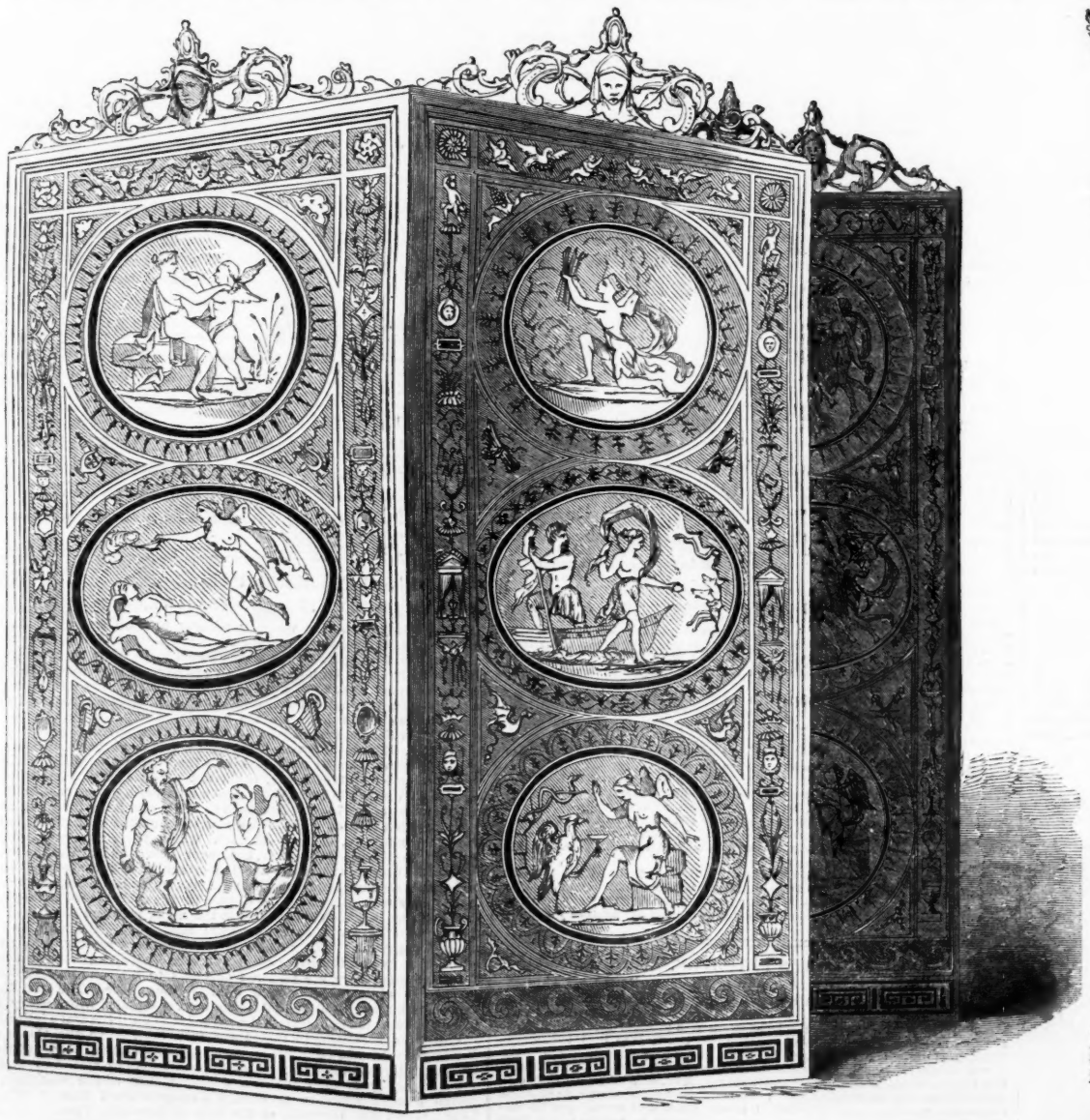
Such is the name under which Mr. Jones exhibits a very beautifully mounted watch, the decoration of which is intended to be suggestive throughout. On one half of the margin around the back is engraved, on blue enamel, "Man cometh forth as a flower, and is cut down." On the surface of the richly-engraved gold back is a Maltese cross, in white ename; and on its four limbs are depicted the four seasons of life, in the bud, blossom, decay, and death of a rose. On the other half of the margin is engraved, "It is sown in dishonour, it is raised in glory." In the centre of the cross is a celestial crown of diamonds, on a blue enamel ground, surrounded by an Olympic wreath of pearls, with rays of glory in enamel, radiating between the limbs of the cross. The dial represents, in enamel colours, the rose window of Westminster Abbey. On the twelve compartments indicating the twelve hours are the names of the twelve Apostles. On the bezel that holds the glass is engraved, in blue enamel, "He that taketh not his cross *daily* is not worthy of me."—*(The "Rose of Sharon.")*

RUSTIC FURNITURE. FROM THE NETHERLANDS.

In the Netherlands department we observed a great variety of rustic furniture, constructed of reeds and light woods, which, with great lightness, appear to combine durability. The forms are agreeable, and adapted to that great English essential, for which there is no word in the French vocabulary—"comfort."



RUSTIC FURNITURE.—FROM THE NETHERLANDS.



FOLDING SCREEN.—BY EARLE.—(SEE PAGE 460.)

"LIBERATION OF CARACTACUS."—BY CONSTANTINE PANORMO.

London: Printed and published at the Office, 198, Strand, in the Parish of St. Clement Danes, in the County of Middlesex, by William Little, 198, Strand, aforesaid.—Saturday, October 11, 1851.—Supplement.

QUEEN VICTORIA'S VISIT TO LANCASHIRE.

SUPPLEMENT TO THE ILLUSTRATED LONDON NEWS.

No. 525.—VOL. XIX.] SATURDAY, OCTOBER 18, 1851. { TWO NUMBERS, 1s. WITH HALF-SHEET SUPPLEMENT, GRATIS.

HER MAJESTY'S VISIT TO THE COUNTY PALATINE OF LANCASTER.

THE return of the Court from their annual residence among the mountains of Aberdeenshire, has been this year marked by features which to the lovers of history might recal the glorious days of Elizabeth, were it not for the curiously distinctive marks which give to the present Royal journey an individual character, and render it, in an eminent sense, a remarkable sign of the times. It was not merely to lordly halls and nobles of high birth that, on this occasion, the visit of a Queen and her illustrious Consort were directed; it was to the merchant princes of a city made by themselves the "Queen of the Seas," from the arctic to the antarctic pole—the modern Tyre, towards which tends the commercial enterprise of all the world: it was to nobility which had taken commerce by the hand and led her from the ocean, smiling, into the bosom of the land; it was to a city whose men, by a singular union of solid character with genius, had given a vital soul and life-like energy to inanimate matter, and, by their well-directed industry, had raised the working power of England from three millions of men to three hundred millions.

The great commercial capital of the North was the first honoured with inspection, whence her Majesty proceeded to Manchester, as the traveller would journey from the shores of some great lake up to the fountains of the rivers whence it drew its wealth of waters. And if fortune smiled on one more than another—if the sun shone on Manchester which was clouded at Liverpool, there can be no jealousy between them as regards the sunshine of Royal favour, which beamed with equal brightness on both, and conferred equal honour on each in the person of its chief magistrate. Of Liverpool, all must acknowledge, even under the most unfavourable circumstances, all its greatness, its enterprise, and its superabundant, ever reproducing wealth were to the full displayed. But if Liverpool was great, Manchester was grand and wonderful. It was a very hive of industry, pouring forth a full demonstration of its long-stored riches. Nor should Salford be omitted, whose Peel Park—that most excellent testimony of a people's gratitude—and that one great spectacle of 82,000 children collected in the Royal honour, can never be forgotten.

With these few preliminary remarks, we proceed to describe in detail the interesting incidents which marked her Majesty's progress from her mountain home to the glades of Windsor Park.

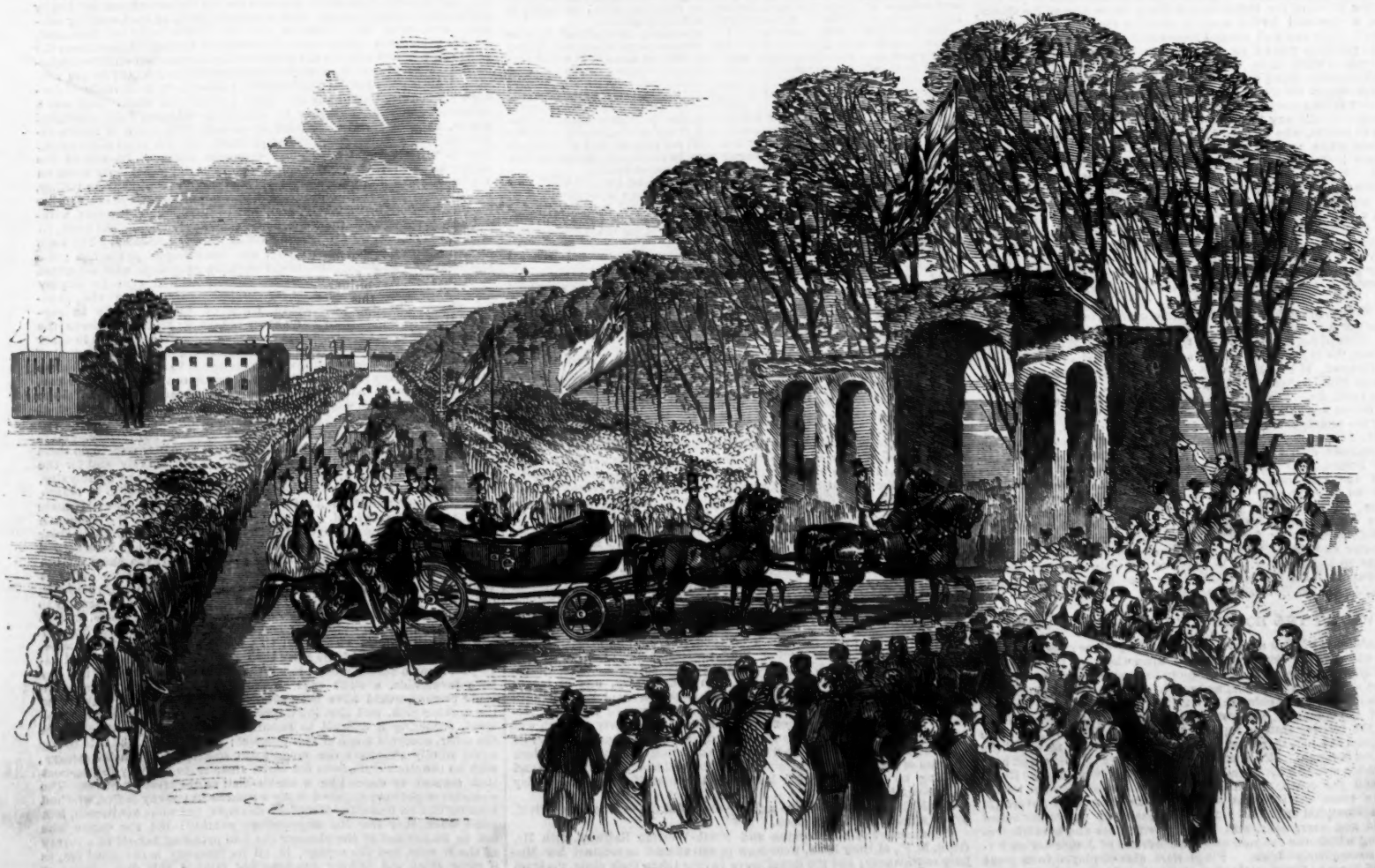
HER MAJESTY'S DEPARTURE FROM BALMORAL.

The Queen and his Royal Highness Prince Albert, with the Prince of Wales, and the other youthful members of the Royal family who had accompanied their illustrious parents to Scotland, left Balmoral on their return to the south, on Tuesday, the 7th instant. The weather was very unfavourable, the rain falling heavily. Notwithstanding this circumstance, a number of residents in the neighbourhood, and all the dependents upon the Royal demesne, assembled to witness the departure of her Majesty. At the appointed hour, the Queen's carriage, containing her Majesty, the Prince Consort, the Princess Royal, and the Prince of Wales, drove down the avenue, followed by a carriage in which rode the other Royal children and the Ladies-in-Waiting; and then came the Earl Grey, Colonel the Hon. C. B. Phipps, Colonel the Hon. A. Gordon, Sir James Clark, and Mr. Birch in a *char-à-banc*. Two carriages, with the household servants, had been sent on before.

The route traversed by the Royal party, in order to reach the railway, was by the banks of the Dee to Banchory, and thence across the lower range of Grampians to Stonehaven, about 15 miles from Aberdeen. Leaving Abergeldie on the left, a fine old mansion, long the property of a branch of the ancient family of Gordon, and now possessed by the Duchess of Kent, the Royal *cortège* passed Prince Albert's property of Birkhall, crossed from the south to the north side of the Dee, and ended the first stage of their journey at the village of Ballater. Here a large concourse of people had assembled to testify their loyalty to the Queen, and a detachment of the 42d Regiment, the *dépôt* of which is now at Aberdeen, was in attendance as a guard of honour. Leaving Ballater, and driving down the north side of the Dee, the Royal party arrived at Aboyne, where her Majesty was again greeted by the cheers of a loyal and attached people. On leaving Banchory, which was their next stage, the Royal *cortège* passed across the romantic bridge of Teugh, and then, turning eastward, crossed the Grampian Chain, at a place called the Slug, whence for seven miles the drive was as cheerless, barren, and wild as can well be imagined. On emerging from the Slug the Queen drove on by Ury, the seat of Captain Barclay, towards the railway station at Stonehaven, where the Royal carriage drew up at half-past one o'clock, amid the acclamations of a crowd of spectators who had assembled at that place. Her Majesty and Prince Albert, the Princess Royal and the Prince of Wales, on alighting from their carriage, were received by Lord James Hay, chairman of the Aberdeen Railway, Mr. Alexander Pirie, vice-chairman, Mr. Keith, secretary, Major Christie, Mr. Birnie, of Ashgrove, and Mr. Wallace, of Perth, directors. Her Majesty and the Prince acknowledged the attention of these gentlemen, and walked to the private apartments, where luncheon was laid out for the Royal party.

THE ROYAL PROGRESS FROM STONEHAVEN TO EDINBURGH.

The weather, which had been stormy up to this point, now cleared up, and at five minutes to two o'clock her Majesty entered the Royal saloon carriage belonging to the London and North-Western Railway, which, with five or six other first-class carriages, had been sent to Scotland under charge of Mr. Wright, of the carriage department, for the Royal accommodation. At two o'clock the pilot engine started, and was soon



THE ROYAL PROCESSION AT THE ENTRANCE TO PEEL PARK, SALFORD.